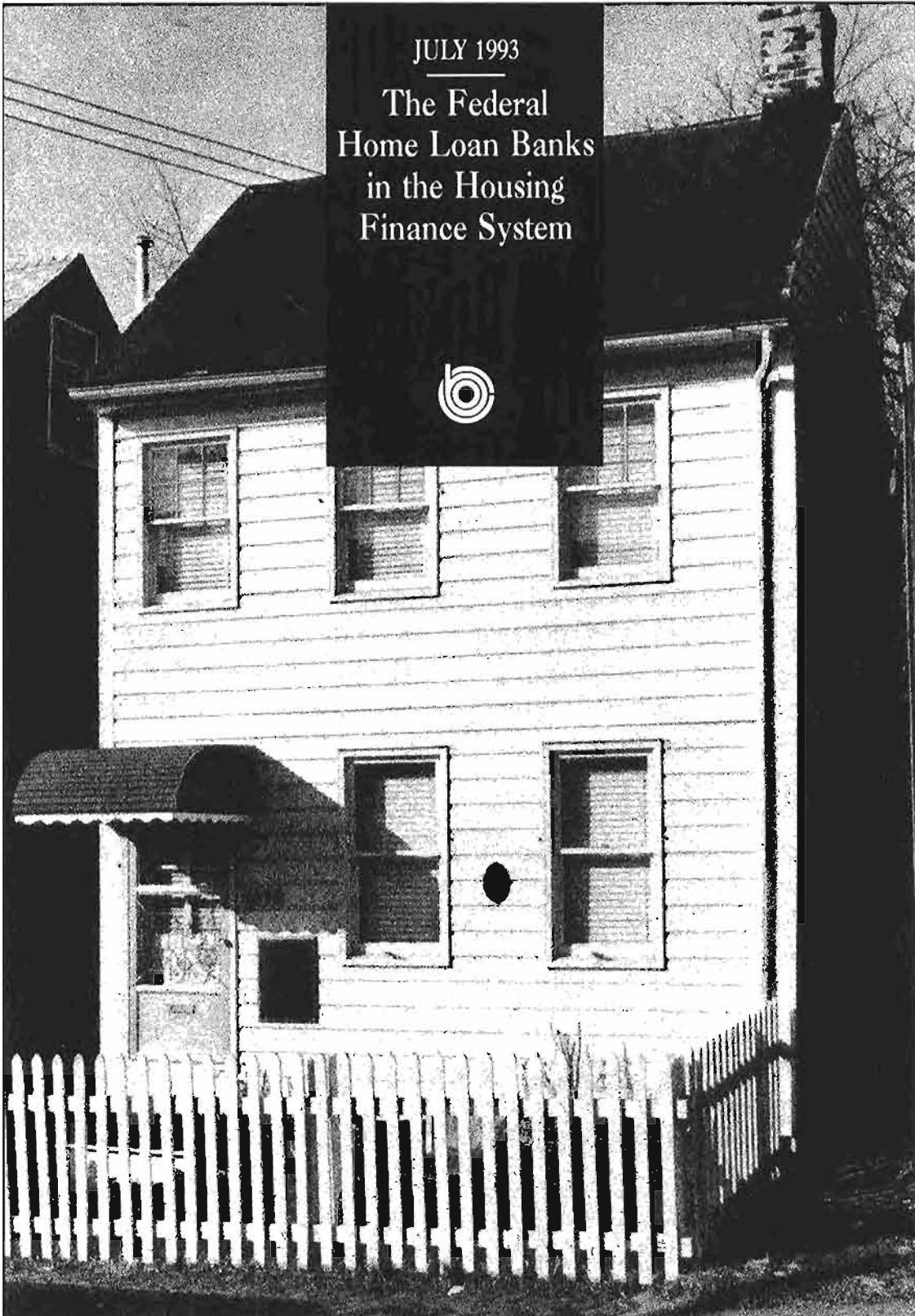


CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

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STUDY

JULY 1993

The Federal
Home Loan Banks
in the Housing
Finance System



**THE FEDERAL HOME LOAN BANKS
IN THE HOUSING FINANCE SYSTEM**

The Congress of the United States
Congressional Budget Office

NOTES

Numbers in the text and tables may not add to totals because of rounding.

All years in the report are calendar years.

Cover photo shows the Comly Rich house in Frankford, Pennsylvania (now part of Philadelphia). Rich, a village lamplighter, bought the house in 1831 with the first home mortgage financed by a savings and loan association in the United States.

Preface

The Federal Home Loan Bank (FHLB) System is a government-sponsored enterprise that provides low-cost loans to home mortgage lenders. The system was created in 1932, when the nation's housing finance system looked very different than it does today. This study examines a variety of policy options for changing the role of the Federal Home Loan Banks to reflect today's housing finance markets.

The study was mandated by section 1393 of the Housing and Community Development Act of 1992 (Public Law 102-550). That statute requires the Congressional Budget Office (CBO) to provide the Senate Committee on Banking, Housing, and Urban Affairs and the House Committee on Banking, Finance and Urban Affairs with answers to 14 specific questions about the Federal Home Loan Banks; those answers are presented in Appendix A.

Douglas R. Hamilton of CBO's Macroeconomic Analysis Division prepared the study under the supervision of Robert A. Dennis. Laurie S. Brown provided extensive research assistance, with additional help from Michael S. Simpson, Mark M. McMullen, and Blake P. Mackey.

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Director

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Summary

The Federal Home Loan Bank (FHLB) System is a government-sponsored enterprise that was created in 1932 to provide low-cost loans, called advances, to home mortgage lenders. The FHLBs raise the money for advances by issuing bonds in the international capital markets. Because investors believe that the system's debt carries an implied federal guarantee against losses, the FHLBs can raise money relatively cheaply.

To take out an advance, a lender must first become a member of one of the system's 12 district banks. Membership is open to savings and loan associations, savings banks, credit unions, commercial banks, and insurance companies who have at least 10 percent of their portfolio in residential mortgages. Members have to purchase their district bank's stock, which is not traded but usually provides a dividend.

The world of housing finance has changed dramatically since 1932. The Congress requested this study to examine the appropriate role of the FHLB system in today's modern system of housing finance. The study discusses three alternative futures for the banks:

- o Maintaining current policy;
- o Enhancing the system's traditional role of providing advances; or
- o Transforming the system into a new government-sponsored enterprise with a new mission.

Before evaluating these three alternatives, policymakers may want to determine whether

the Federal Home Loan Banks are needed in today's market. The FHLBs were created in the 1930s to overcome an imperfection in the nation's credit markets. At that time, many home mortgage lenders were vulnerable to failure during economic downturns, when depositors tended to draw down their savings. Because the lenders' funds were tied up in relatively illiquid home mortgages, lenders had trouble satisfying depositors' demands for cash. These liquidity squeezes hampered the ability of the nation's thrifts to provide a reliable supply of mortgages. The FHLBs were created to guarantee a stable source of funds for the mortgage markets.

One of the most important developments in the nation's housing finance markets has been the emergence of a large secondary market in existing mortgage debt. This development has made the portfolios of home mortgage lenders much more liquid than they once were. In addition, private markets now offer sources of funds that can meet members' liquidity needs. These alternative sources, however, tend to cost more and are available on less attractive terms than FHLB advances. Thus, although the system no longer overcomes a failure of private markets to provide liquidity for home mortgage lenders, it offers members subsidized liquidity. Policymakers may wish to consider whether this activity is appropriate for the FHLBs.

The nation's credit markets, however, are not perfect, and the system continues to provide some products that the private market does not offer. For instance, without the FHLBs, most depository institutions would not have access to medium- and long-term sources of funds and would have much more trouble managing their interest rate risk.

Helping federally insured depository institutions manage their exposure to fluctuations in interest rates benefits the deposit insurance funds and arguably provides the strongest justification for the banks' continued existence as a government-sponsored enterprise (GSE). But if the system were to focus solely on helping depository institutions manage interest rate risk, it would be considerably smaller than it is today.

Maintaining Current Policy

Current policy appears to have many things going for it. At the end of 1992, the FHLBs had issued almost \$80 billion of advances, with virtually no credit risk (the risk that a borrower will default). The system also provides a range of other benefits to its members, including subsidies for affordable housing and community development. (Most of the system's advances, however, are untargeted.) Finally, the banks help to finance the cleanup of insolvent thrifts.

Despite these positive aspects, the system currently faces some perverse financial pressures that have inadvertently undercut its mission and increased its exposure to risks, especially managerial shortcomings and operational failures. Because these risks cannot be easily quantified, it is hard to say how much risk has increased. At the same time that risks have gone up, the system's retained earnings--the only form of capital in the system that can absorb risk without transferring it to the federal deposit insurance funds--have gone down.

The System's Primary Product: Advances

The traditional activity of the FHLBs--providing advances--involves virtually no risk to the FHLBs, for three reasons. First, the ad-

vances are overcollateralized with assets of relatively high quality. Second, the FHLBs can tap their members' stock if the collateral proves insufficient. Third, the FHLBs have a statutory lien priority over the borrowing members: the FHLBs would be first in line during a borrowing member's bankruptcy proceedings and would have the pick of the member's best assets. Advances also carry little interest rate risk because the banks finance them with liabilities of similar durations.

To the federal government, the only potential cost of an advance is an indirect one: when members substitute an advance for a federally insured deposit, they pay less for deposit insurance. But because advances are collateralized, the FHLBs do not bear any of the risk of the members' portfolios. Instead, the insurance funds are stuck with all the risk.

Thus, the way deposit insurance premiums are calculated creates inequities among depository institutions: two lenders with identical risks can pay different amounts for deposit insurance. Moreover, it distorts the decisions of members about the most efficient way to raise money. And if the Federal Deposit Insurance Corporation did not take offsetting steps to increase the premium rate on deposits, an increase in advances could reduce the revenues of the nation's deposit insurance funds.

This situation is not unique to FHLB advances; it is common to all collateralized borrowings and results from the fact that insurance premiums are collected on deposits, not on deposits plus collateralized borrowings.

The System's Role in Affordable Housing and Community Development

The system finances two programs for community investment and affordable housing. The system's Affordable Housing Program (AHP) provides subsidies to members that finance the construction and rehabilitation of residen-

tial properties for low-income renters and provide home mortgages to low-income families. So far, about two-thirds of the benefits have gone to people whose income does not exceed 50 percent of the median income for their area. In 1992, the system spent \$50 million on the AHP, and under current law it will spend at least \$50 million on the program in 1993, \$75 million in 1994, and \$100 million in 1995 and thereafter.

The other program is the Community Investment Program, which assists members that make loans to home buyers whose income does not exceed 115 percent of the median income for their area. It also helps community-based organizations involved in commercial and economic development. Virtually all of the funds have been spent for residential housing, largely because most of the system's borrowers are home mortgage lenders. The program provides advances to members at the banks' cost of funds plus a small markup (zero to 10 basis points) for administrative costs. The Congressional Budget Office (CBO) estimates that the system provided about \$7 million of cumulative subsidies from 1990 through 1992.

These two programs are small relative to the system's major activity of providing untargeted advances to its members. Certainly, some untargeted advances may help members finance low-income mortgages. But there is no evidence that members that heavily borrow FHLB advances are more likely to finance a low-income mortgage. And once an advance leaves the banks, tracing where the money goes is futile. FHLB advances could fund any asset on its members' balance sheets--even those completely unrelated to home mortgage lending.

Perverse Incentives from the FHLBs' Payment to REFCORP

The system is required to make a \$300 million annual payment to the Resolution Funding

Corporation (REFCORP), an off-budget corporation created to borrow money to help finance the resolution of insolvent thrifts. This payment has distorted the system's activities and inadvertently undercut its natural inclination to provide advances to its members. More worrisome, the payment has created strong pressures for the system to expand its activities and seek out new lines of business.

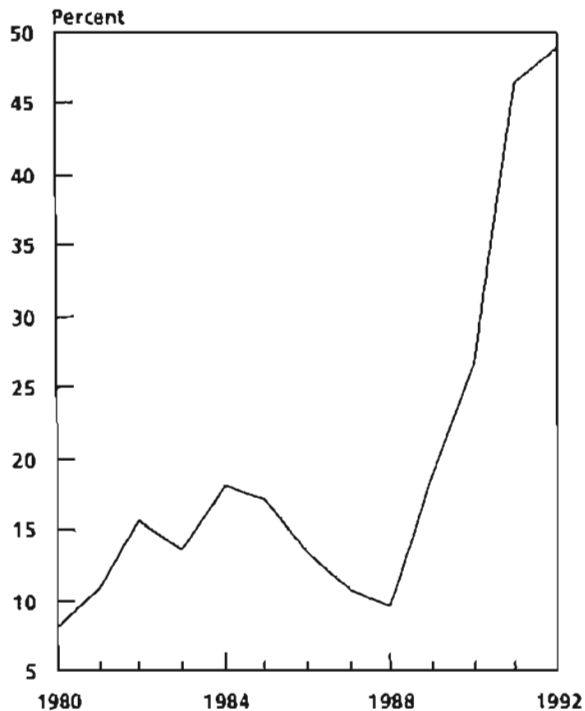
The system has greatly expanded its portfolio of financial investments in order to generate sufficient revenue to cover the \$300 million payment and provide a market return to its shareholders. These investments are mainly federal funds, mortgage-backed securities, and commercial paper. The system's investment portfolio now amounts to about \$79 billion--roughly half of the system's total assets (see Summary Figure 1). In 1989, investments accounted for just 20 percent.

Although the system's largest investment is in federal funds, the banks earn most of their investment income through an arbitrage between the bonds they issue and the mortgage-backed securities (MBSs) they buy. The banks limit the risks of this arbitrage by issuing callable debt with a duration that roughly matches that of the MBSs and by holding relatively short-term securities. These actions can protect against some of the interest rate and prepayment risks of MBSs.

Nevertheless, these MBS investments introduce some new management and operations risks into the system. Carrying out a risk-controlled arbitrage can be difficult; it requires sophisticated financial models and skilled portfolio managers. Although the systems' regulator, the Federal Housing Finance Board, examined 10 of the 12 banks in 1992 and did not find any serious and persistent managerial shortcomings, CBO cannot confirm those conclusions without independently auditing the system. Doing that is beyond the scope of this study.

The most perverse aspect of the \$300 million REFCORP payment is that the formula for allocating the payment among the banks

Summary Figure 1.
Financial Investments by the Federal
Home Loan Banks as a Share of
Total Assets, 1980-1992



SOURCE: Congressional Budget Office using data from the Federal Housing Finance Board.

can discourage the FHLBs from making advances to savings and loan associations (S&Ls). Under current law, each FHLB pays 20 percent of its net income to REFCORP. If the total amount is less than \$300 million (as it has been since 1989), the shortfall is allocated to each district bank in proportion to the share of advances that it makes to members insured by the Savings Association Insurance Fund, almost all of which are savings and loan associations. Thus, if a bank provides an advance to an S&L, the bank has to pay a larger share of the REFCORP payment. No such penalty applies if the bank invests in a mortgage-backed security or provides an advance to a member insured by the Bank Insurance Fund.

Capital in the FHLB System

From the narrow perspective of the FHLBs, the system appears to be well capitalized. At the end of 1992, the system held capital amounting to 6.5 percent of total assets. By contrast, the other two housing GSEs--the Federal National Mortgage Corporation (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac)--held 1.1 percent and 0.8 percent capital to total assets (including mortgage-backed securities that are off the balance sheet), respectively.

But from the global perspective of the federal government's overall exposure to risk, most of the system's capital is ill-suited to absorbing risk. Virtually all of the FHLBs' capital is FHLB stock, which is largely financed through federally insured deposits. Although that stock is an equity investment, FHLB members have to put up only 1.6 cents of their own capital for each dollar of stock. Thus, the FHLBs may appear to be well capitalized, but little of that capital can absorb losses without increasing the exposure of the federal deposit insurance funds to risk. Only the system's retained earnings can bear risk from the standpoint of protecting insured depository institutions.

Over the past five years, however, retained earnings have dropped precipitously. The Congress tapped the system's retained earnings to help pay for the resolution of insolvent thrifts in the late 1980s, which is the main reason why retained earnings fell from \$2.5 billion in 1987 to \$820 million in 1989. Moreover, since 1989, the banks have reduced their retained earnings every year, with the approval of the Federal Housing Finance Board. At the end of 1992, retained earnings amounted to \$429 million, or just 0.3 percent of total assets.

The system currently does not have a risk-based capital standard, and policymakers may

want to establish one. Policymakers may also want to replace the system's current leverage ratio with a minimum capital standard to control management and operations risks.

In setting such standards, policymakers will have to define what items would constitute capital for the purposes of meeting the standards. Two broad approaches for defining capital stand out. The first approach would count FHLB stock as capital but would change how that stock is treated as an asset on members' balance sheets. Under this option, the thrift and bank regulators would be directed to classify FHLB stock as a true equity investment, which would require depository institutions to hold one dollar of their own capital for each dollar invested in FHLB stock. Then, when it set a risk-based capital standard for the FHLB system, the Congress could rely on that capital to protect the government. With this change, FHLB stock could absorb losses without increasing the risks to the deposit insurance funds.

Under the second approach, the system would not be allowed to count FHLB stock as capital for the purposes of meeting its federal risk-based capital standard. Instead, the FHLB system would have to hold enough retained earnings (or issue some form of publicly traded stock that members could not hold) to meet the standard. Under this approach, the Federal Deposit Insurance Corporation and the Office of Thrift Supervision would not take any action.

Some people argue that the system may not be able to meet the REFCORP payment and simultaneously increase its retained earnings. For example, if the system had to rebuild retained earnings to meet a new capital standard, the system's dividend yields (and other benefits) might drop so low that it would lose members. The likelihood of this situation cannot be assessed--no one currently knows how low the banks could safely push their dividend yields without causing their voluntary members to leave.

Enhancing the System's Traditional Role of Providing Advances

A number of proposals have been made that aim to enhance the system's traditional role. These options include changing the membership rules, expanding the collateral requirements, and consolidating the system. Each option has advantages and disadvantages. None of these options, however, is likely to have much effect in reducing the system's investment portfolio. If policymakers want the system to focus primarily on advances, they will have to lift some or all of the REFCORP payment and reduce the banks' authority to invest in MBSs and other investments. (The system's investment authority should not be eliminated; the system needs restricted authority so that the FHLBs can manage their portfolios. The banks, for instance, should be allowed to invest members' deposits in short-term liquid securities.)

Changing the Membership Rules

Under current law, the system employs a complex set of rules that distinguish among different classes of members. Members are classified according to both the percentage of home mortgages they hold in their portfolios and the type of charter they have.

Under current law, members who are qualified thrift lenders (QTLs) receive preferential requirements for their stock purchases. Those members are primarily savings institutions (S&Ls and savings banks). Most non-QTL members are commercial banks. One option would be to apply the same rule for stock purchases to all members. The main advantage of doing so is that it would recognize that commercial banks finance about as much mortgage debt on one- to four-family homes as do

the system's traditional QTL members. The major disadvantage is that commercial banks finance many other assets that are unrelated to housing, and FHLB advances could also finance those assets. In any case, this option would probably not have much near-term effect on the system. Most commercial bank members have excess borrowing capacity, and thus their borrowing is not constrained by their higher stock purchase requirements. These constraints could, however, become binding when economic growth picks up.

As a further step toward equalizing the treatment of members in the FHLB system, the Congress could make membership in the system fully voluntary. Federally chartered S&Ls are required by statute to be members; commercial banks, savings banks, credit unions, and insurance companies are voluntary members. (State-chartered S&Ls are required by regulation to be members until 1995, although the Office of Thrift Supervision has already allowed at least one S&L to leave.)

The primary advantage of granting full voluntary membership to all members is that it would allow each institution to decide how best to invest its resources. If the FHLB system did not offer benefits commensurate with its costs, the member would be able to take the resources that it currently has tied up in FHLB stock and invest them in alternative assets that provided better rewards. Voluntary membership could also enhance the governance of the system because the system would no longer have captive members. The main disadvantage of this option is that as long as the system had to make a fixed \$300 million payment to REFCORP, voluntary membership could allow a "run" on the system. The Congress, if it acted promptly, could stop such a run by simply eliminating the REFCORP payment. But in doing so, the Congress would have to make someone else bear the \$300 million payment.

Membership could also be extended to non-profit entities involved in affordable housing

and community development. Giving these entities access to low-cost advances could reduce their financing costs. As long as these new members were required to overcollateralize their advance borrowings like other members, expanding membership to these groups would not pose any significant risk to the system. If these groups were given preferential treatment (such as lower collateral requirements), however, the risk to the system could increase.

Changing the Collateral Rules

Under current policy, members generally pledge high-quality collateral (such as residential whole first mortgages, Treasury or agency securities, or FHLB deposits) in order to secure an advance. Members can also pledge "other real estate" assets, provided that advances secured by this collateral do not exceed 30 percent of the members' capital, among other things. One option, suggested in the request for this study, would be to raise this 30 percent limit. Doing so, however, could increase the risks of the system. Some "other real estate" assets (such as construction loans) are much riskier than the traditional residential first mortgages that back FHLB advances. Indeed, the 30 percent limit substitutes for the explicit monitoring that the banks might have to undertake if those limits were lifted. The banks could also reduce the risk from "other real estate" collateral by requiring members to pledge more of this collateral to receive an advance.

The Congress could extend the list of eligible collateral to include small-business loans, which could reduce the funding costs of lenders that make such loans. Like some types of "other real estate" assets, small-business loans are hard to evaluate and are riskier than residential mortgages. The risk could be reduced by including these loans in the limit applied to "other real estate" or requiring higher levels of overcollateralization for them.

Consolidating the System

The FHLBs' system of network banks was set up in the 1930s before the advent of modern telecommunications and computer technologies. Although a regional network of 12 banks may have been essential in those days, it is less important today.

Consolidating the system could save some money. The major source of savings from consolidation would come from eliminating some managerial positions. The system, after all, has 12 bank presidents, 12 general counsels, and 12 chief financial officers.

The savings, however, would not be large. Some of these top officers would be replaced by a new layer of senior vice presidents. Moreover, a consolidated system is unlikely to achieve any additional economies of scale. Costs might even rise if the consolidated system was ineptly managed. Although the system's affordable housing and community development programs and its provision of services to some rural lenders might be affected by consolidation, these effects could be attenuated if the system set up a network of low-cost branch offices. Indeed, some of the money saved by eliminating top positions could be spent to provide additional services in these areas.

The appropriate number of district banks is hard to determine. Although the number could be set legislatively, another option would be to let the market decide by allowing each member to choose its own bank instead of being forced to join the bank whose district encompasses the member's headquarters. If the members valued the decentralized regional structure of the system, the current system would be preserved under this option. If a centralized system provided a better mix of services at lower costs, that form would eventually emerge as members voted with their feet for the type of structure that best met their needs. To reduce the chance of a run on the system under this option, policymakers would have to make the REFCORP payment proportional to each bank's net income.

Giving the System a New Mission

The third alternative future for the FHLBs would be to give them new powers to purchase and securitize assets. Some proposals give the banks authority to purchase residential mortgage loans; other proposals allow the banks to make direct construction loans. Granting such investment powers to the FHLBs would be a major reform, and the Congress would need to provide the banks with the means to manage that risk safely.

Such steps could involve establishing a centralized management board, consolidating the district banks, and making the system a publicly traded company. The regulation of the system would have to be significantly tightened, with much more detailed monitoring of the banks. The Congress would also have to establish a set of risk-based capital standards for the banks and make sure that the system had a form of capital that could bear losses without increasing risk to the deposit insurance funds. Members would have to treat their FHLB stock as a true equity investment and hold one dollar of their own capital for each dollar of stock. Moreover, to limit the riskiness of the banks' investments, the Congress may want the banks to hold portfolios of nationally diversified loans.

One option would be to set up the banks to compete with Fannie Mae and Freddie Mac. The advantage of this option is that it would reduce the chance that Fannie Mae and Freddie Mac could in the future exercise their market power and raise interest rates in the market for fixed-rate conforming mortgages. But additional competition may not have a detectable effect on current mortgage rates. Moreover, the risks of this option are potentially large because the FHLBs have no experience evaluating, purchasing, or securitizing risky assets.

Alternatively, the banks could be set up to purchase or securitize mortgages that Fannie Mae and Freddie Mac do not handle. This option, if anything, poses greater risks than letting the FHLBs compete with them. Moreover, it is not clear that the banks could be profitable enough to attract capital unless they were given a deep subsidy. If the subsidy were large, it would be desirable from a budgeting standpoint to recognize the subsidy as an on-budget expense rather than provide it implicitly through an off-budget GSE.

Conclusion

The Federal Home Loan Banks continue to serve an important public purpose by providing medium- and long-term advances that can

help their members manage interest rate risk. Their traditional role of providing advances, however, has been distorted by the \$300 million payment that the system must make to REFCORP. To earn enough income to meet this payment, the system has greatly increased its investments in mortgage-backed securities, which exposes the system to new management and operations risks.

More important, the system's capital structure cannot absorb significant losses without increasing the risks to the deposit insurance funds. Indeed, the system's retained earnings are the government's major source of protection, but these reserves are currently very low. Of course, the system may not be exposed to much risk either. But with retained earnings at 0.3 percent of total assets, the system does not have much room for error.

Introduction

In 1831, a village lamplighter in Frankford, Pennsylvania, received the first home mortgage from a savings and loan association in the United States.¹ The association was organized by a group of local people who pooled their savings and added new funds to the pool on a regular basis. Each time the pool was large enough, they issued a mortgage to one of their members, who was selected by a lottery. This process continued until everyone in the pool could buy a home. The idea caught on, and new savings and loan associations (S&Ls) sprang up everywhere. Eventually, they offered interest on their savings accounts and auctioned the loans to the highest bidder.

The S&Ls filled an important gap in the nation's financial system. Commercial banks provided credit mainly to businesses rather than to home buyers; individual savers with small accounts had few places to put their money. Savings and loan associations linked these two needs by offering interest-bearing deposits and issuing home mortgages.

Another type of mortgage lender--the mutual savings bank--also emerged early in the 19th century in the northeastern section of the United States. These banks were originally set up as philanthropic institutions to help the urban poor by offering a broad range of savings accounts with a variety of minimum

sizes and maturities. The savings banks were an important source of mortgage money, though they also invested in a range of other assets including consumer loans, government securities, and high-quality corporate stocks and bonds. Together, savings and loan associations and mutual savings banks became known as the thrift industry. By 1930, the nation had about 12,000 thrift institutions with \$19 billion of assets.

This system of housing finance, however, was limited in two respects. First, it could not easily accommodate the rapid growth in some regions of the country. Because mortgage financing in this system depended largely on local sources of funds, regional imbalances developed in the demand for and the supply of mortgage funds.² Second, the industry was fairly illiquid and vulnerable to failure during severe economic downturns. During those times, many depositors tapped their savings accounts in order to pay their bills. But because the thrifts invested most of their depositors' money in relatively illiquid home mortgages, many institutions had trouble satisfying all of their depositors' demands for cash. Some institutions failed; others stopped making new mortgages, which exacerbated the economy's problems. During the Great

1. Paul Lockwood, *Guide to the Federal Home Loan Bank System* (Washington, D.C.: FHLB System Publication Corporation, March 1987).

2. Although nationally based savings and loan associations existed in the late 1800s, many of these lenders became insolvent during a financial crisis in the 1890s. Moreover, in response to concerns from local S&Ls about competition from the nationals, several state legislatures passed laws that severely restricted the activity of the nationals, which effectively caused their demise. James Barth, *The Great Savings and Loan Debacle* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1991).

Depression, more than 1,700 thrift institutions became insolvent.

In response to these developments, the Congress created two new entities in the 1930s to improve the nation's housing finance system.³ First, in 1932, the Congress created the Federal Home Loan Banks (FHLBs) to provide emergency loans (called advances) to thrift institutions to reduce the effects of unexpected withdrawals by depositors and stabilize mortgage lending in local areas. The FHLBs raised the money for these advances by issuing bonds to investors in national capital markets. In this way, the FHLBs intermediated funds between national capital markets and local mortgage markets. They also helped channel funds from regions with excess supplies to those with shortages.

Second, in 1934, the Congress created the Federal Savings and Loan Insurance Corporation to provide insurance to depositors in the event of failure. The purpose of federal deposit insurance was to eliminate the cause of a financial panic by providing a credible guarantee that depositors would not lose their money when a thrift failed.

The nation has come a long way since 1932. New institutions have entered the mortgage market, and new methods of financing mortgages have emerged. Consumers can now choose among a wide array of mortgage products. The traditional thrift that flourished in the three decades after World War II is no longer the predominant player in the market for 30-year fixed-rate loans. Moreover, mortgage services have become unbundled, with institutions specializing in different aspects--origination, servicing, or financing--of a home mortgage.⁴

3. As part of its 1930s reform package, the Congress also created a federal charter for savings and loan associations in 1933. The purpose of this charter was to help fill in the geographic gaps in the nation's housing finance system by encouraging the development of federally chartered S&Ls in areas of the country that were not served by state-chartered thrifts.

These dramatic changes in the nation's financial system have prompted the Congress to ask the Congressional Budget Office to prepare this study of the Federal Home Loan Bank System and, specifically, to address 14 questions about the system (see Appendix A). Although the questions cover a wide range of issues, a simple question underlies most of them: What, if anything, should the Congress do about the FHLB system? The specific questions deal with the implications of three alternative futures for the system:

- o Maintain current policy.
- o Enhance the system's traditional mission of providing advances.
- o Transform the system into a new government-sponsored enterprise with a new mission.

Those issues must be considered in the context of the broad changes in the nation's system of housing finance over the past 60 years--changes that have affected the shape and structure of the institutions that provide mortgage credit.⁵ The thrift industry (and depository institutions in general), for example, faces much more competition in its role as provider of credit, primarily from the new market for mortgage-backed securities. This new competition is certainly weeding out some inefficient suppliers of mortgage credit. Some analysts, however, have raised questions about whether the competition is fair.⁶

The thrift industry, however, is not dead. The nation's best-run depository institutions are able to finance mortgage loans, especially

4. Patric Hendershott, "The Market for Home Mortgage Credit: Recent Changes and Future Prospects," Working Paper No. 3548 (National Bureau of Economic Research, Cambridge, Mass., December 1990).

5. James Barth, R. Dan Brumbaugh, Jr., and Robert Litan, *The Future of American Banking* (Armonk, N.Y.: M.E. Sharpe, 1992).

6. Edward Kane, "The Changing Institutional Structure of Housing Finance" (paper presented at the Sixteenth Annual Conference of the Federal Home Loan Bank of San Francisco, December 13-14, 1990).

those with adjustable rates, at a profit. The industry may also profitably fund nonconforming mortgages (such as those with principal balances above \$203,150). And the industry will probably continue to originate mortgages. But even in these markets, S&Ls will face heightened competition. In the origination of mortgages, for instance, thrifts face pressure from mortgage bankers, who tend to have lower costs because they operate with less "bricks and mortar" than many thrifts.

The Emergence of a Secondary Mortgage Market

The most significant change in the nation's mortgage markets since the 1930s has been the emergence of a large secondary market in which existing home mortgage debt is traded. This market has greatly improved the liquidity of home mortgage lending. Thrift institutions (and other primary mortgage lenders) can now readily sell many types of home mortgages. The secondary markets also permit institutions to specialize in the origination of mortgages.

The federal government played an active role in fostering the secondary market by chartering two government-sponsored enterprises (GSEs) to purchase home mortgages for their portfolios from primary lenders. In 1938, the Federal National Mortgage Association (Fannie Mae) was created to purchase mortgages that were insured by the Federal Housing Administration (FHA). In 1970, the Federal Home Loan Mortgage Corporation (Freddie Mac) was chartered to buy conventional mortgages--that is, mortgages that are not insured by the FHA or by the Department of Veterans Affairs (VA).⁷ Today both GSEs have identical charters and public purposes.

7. For more history, see Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (April 1991), pp. 128-129.

Fannie Mae and Freddie Mac primarily purchase conventional first mortgages for one-to four-family homes, subject to some restrictions. For instance, in 1993 they are not allowed to purchase mortgages for single-family one-unit homes that have principal balances greater than \$203,150, except for mortgages on properties located in Hawaii, Alaska, Guam, and the Virgin Islands, where the limits are 50 percent higher. These limits adjust each year to reflect changes in the price of housing. Mortgages under these limits that also meet the GSEs' underwriting guidelines are called conforming mortgages.

The Growth of Mortgage-Backed Securities

The emergence of the secondary market has also been facilitated by the development of a new method of financing mortgages known as securitization. Typically, a financial intermediary creates a pool of (whole) mortgages purchased from originators, and then finances that pool by issuing mortgage-backed securities (MBSs) to investors. Each investor receives a prorated share of principal and interest payments from the underlying pool of mortgages. The intermediary may guarantee (for a fee) the timely payment of interest and principal on the MBS and thus absorb the credit risk--the risk that borrowers will default on their mortgages in the pool. Alternatively, another firm, such as an insurance company, may provide the credit guarantee. The risk that changes in interest rates can affect the value of a mortgage pool, however, is passed through to investors.⁸

8. The interest rate risk of mortgages has also been partially unbundled through the creation of multiclass mortgage-backed securities. Because borrowers have the right to prepay their mortgages, the traditional (single-class) mortgage-backed security has an uncertain timing for the repayment of principal. By contrast, multiclass MBSs divide the mortgage pools into different classes--or tranches. Some tranches of multiclass MBSs, for example, may receive principal back at earlier dates than other tranches. Availability of tranches with short maturities has broadened the appeal of investing in mortgages.

Table 1.
Outstanding Mortgage Debt for One- to Four-Family Residences, by Institution,
End of Year 1977-1992 (As a percentage of total)

	1977	1978	1979	1980	1981	1982	1983	1984
Portfolio Lending								
Savings Institutions	57.4	55.7	52.9	50.5	48.2	42.3	40.2	39.6
Commercial Banks	16.4	17.1	17.2	16.6	16.4	16.1	15.2	14.7
Ginnie Mae	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0
Fannie Mae	4.4	5.0	5.2	5.4	5.4	6.1	6.1	6.2
Freddie Mac	0.4	0.3	0.4	0.4	0.5	0.4	0.6	0.7
Other ^a	11.7	11.7	12.7	14.1	15.3	16.4	15.2	14.6
Subtotal	90.6	89.9	88.4	87.0	85.9	81.4	77.4	75.9
Mortgage Pools								
Ginnie Mae	6.8	7.0	8.5	9.5	9.9	10.7	13.0	13.2
Fannie Mae	0	0	0	0	0.1	1.3	2.1	2.7
Freddie Mac	0.9	1.3	1.4	1.4	1.9	3.9	4.8	5.3
Private Mortgage Conduits	0	0	0	0.4	0.5	0.7	1.0	1.4
Farmers Home Administration	1.8	1.8	1.7	1.7	1.8	1.8	1.7	1.6
Subtotal	9.4	10.1	11.6	13.0	14.1	18.6	22.6	24.1
Total	100	100	100	100	100	100	100	100

SOURCE: Congressional Budget Office using data from the Federal Reserve Board.

Fannie Mae and Freddie Mac are the primary institutions that securitize home mortgages. Recently, some private companies have also begun to securitize a significant number of home mortgages, most of which are probably above the conforming limit. In addition, the Government National Mortgage Association (Ginnie Mae), which is an agency of the federal government, guarantees pools of FHA- and VA-insured mortgages that have been assembled by others, such as mortgage bankers, but it does not issue MBSs itself.⁹

The growth of securitization over the past 15 years has been phenomenal. The percentage of the nation's home mortgages on one- to four-family residences held in all mortgage pools grew from about 10 percent in 1977 to

almost 50 percent in 1992 (see Table 1). At the end of last year, almost \$1.4 trillion of the nation's outstanding residential (one- to four-family units) mortgage debt was financed through mortgage pools.

As a result of the securitization of mortgage debt, the market for fixed-rate conforming mortgages has become fully integrated into the nation's capital markets.¹⁰ This integration has already provided important benefits to the nation's housing markets. Although large numbers of thrift institutions and banks failed during the past decade, home buyers hardly noticed. They had little trouble securing mortgage credit at favorable rates during this period of institutional restructuring.

9. Ginnie Mae's guarantee is largely needed to ensure the timely payment of interest and principal; the FHA and VA will eventually cover most defaults. Ginnie Mae also takes credit risk on some of these loans.

10. Patric Hendershott and Robert Van Order, "Integration of Mortgage and Capital Markets and the Accumulation of Residential Capital," *Regional Science and Urban Economics*, vol. 19, no. 2 (May 1989), pp. 188-210.

Table 1.
Continued

	1985	1986	1987	1988	1989	1990	1991	1992
Portfolio Lending								
Savings Institutions	36.9	32.4	30.6	30.5	27.6	22.8	19.5	16.6
Commercial Banks	14.2	13.6	14.0	15.2	16.1	17.3	17.6	17.4
Ginnie Mae	0	0	0	0	0	0	0	0
Fannie Mae	6.1	5.3	4.6	4.0	3.7	3.6	3.6	4.2
Freddie Mac	0.8	0.6	0.6	0.7	0.8	0.7	0.9	1.1
Other ^a	14.9	16.1	14.6	13.7	13.8	14.6	13.8	13.8
Subtotal	72.9	68.0	64.3	64.1	62.0	59.0	55.3	53.1
Mortgage Pools								
Ginnie Mae	13.8	14.9	15.7	15.1	14.8	14.9	15.0	14.0
Fannie Mae	3.6	5.5	7.0	7.8	9.1	11.0	13.1	14.8
Freddie Mac	6.6	9.6	10.5	10.0	11.0	11.7	12.7	13.6
Private Mortgage Conduits	1.6	2.0	2.4	3.0	3.2	3.4	3.8	4.5
Farmers Home Administration	1.5	0	0	0	0	0	0	0
Subtotal	27.1	32.0	35.7	35.9	38.0	41.0	44.7	46.9
Total	100	100	100	100	100	100	100	100

a. Includes individuals, mortgage companies, real estate investment trusts, state and local credit agencies, state and local retirement funds, noninsured pension funds, credit unions and other government agencies, life insurance companies, Farmers Home Administration, Federal Housing Administration, Veterans Administration, and Federal Land Banks.

The Decline of the Thrift Industry

The importance of the thrift industry in the nation's system of housing finance has greatly diminished during the past 15 years. In 1977, almost 60 percent of the nation's whole mortgages for one- to four-family residences were held in the portfolios of savings institutions (see Table 1). By 1992, they held less than 17 percent of those whole mortgages.¹¹

Several factors squeezed the thrift industry.¹² The high and volatile interest rates of the late 1970s and early 1980s significantly reduced thrifts' profitability and net worth.

The response of the Congress and regulators to the thrifts' troubles was to allow them to enter new lines of business; as a result, the credit risk of many thrifts' business increased sharply. As the 1980s progressed, many of these thrifts failed. By the mid-1980s, the thrifts also began to face stiff competition from Fannie Mae and Freddie Mac.

High Inflation, High Interest Rates, and the Policy Response

The thrift industry was unprepared for the high inflation and volatile interest rates of the 1970s and early 1980s. Until that time, the

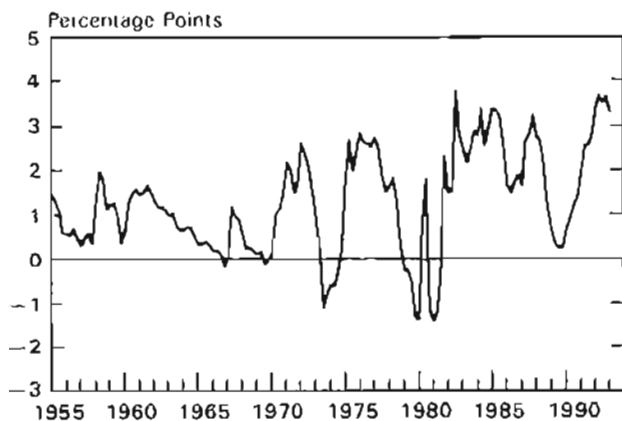
11. Savings institutions, however, significantly boosted their holdings of mortgage-backed securities over this period. See Dwight Jaffee and Kenneth Rosen, "Mortgage Securitization Trends," *Journal of Housing Research*, vol. 1, no. 1 (1990), pp. 117-137.

12. For a detailed analysis of the sources of the thrift crisis, see Barth, *The Great Savings and Loan Debacle*; Edward Kane, *The S&L Insurance Mess: How Did it Happen?* (Washington, D.C.: Urban Institute Press, 1989); Lawrence White, *The S&L Debacle: Public Policy Lessons for Bank and Thrift Regulation* (New York: Oxford University Press, 1991); and Congressional Budget Office, *Resolving the Thrift Crisis* (April 1993).

business of making 30-year fixed-rate mortgages seemed simple and safe. The relatively low and stable interest rates that persisted throughout most of the post-World War II period masked the true risk of funding a long-term fixed-rate loan with short-term money (see Figure 1). Indeed, federal policies and those of many state governments made it difficult for thrifts to avoid this risk. Federally chartered S&Ls, for instance, were not allowed to issue adjustable-rate mortgages until the late 1970s, and most states (except California and Wisconsin, which allowed state-chartered thrifts to issue adjustable-rate mortgages in the early 1970s) had similar restrictions on state-chartered thrifts until that time as well.

The world of easy money for the thrift industry first began to change in the mid-1960s. The growth of the economy during the 1964-1966 period caused short-term interest rates to rise, and in that environment, thrifts competed for funds by raising interest rates on deposits. But since much of the industry's money was tied up in lower-yielding fixed-rate mortgages, the increase in thrifts' funding costs caused a sharp deterioration in their profits.

Figure 1.
Interest Rate Spread Between Ten-Year
Government Notes and Three-Month
Treasury Bills, 1955-1993



SOURCE: Congressional Budget Office using data from the Federal Reserve Board.

In response to these difficulties, the Congress passed legislation in 1966 that gave regulators the authority to place ceilings on the interest rates that thrifts could charge for their various savings accounts. The interest rate ceilings eliminated the competitive pressures among thrifts to bid up deposit rates and thus helped thrifts to maintain profitability during periods of high interest rates.

Commercial banks had already been subject to similar interest rate ceilings (under Regulation Q). The regulators initially set the interest rate ceilings for thrifts at three-quarters of a percentage point above those for commercial banks (although by 1973 they had lowered the differential to one-quarter of a percentage point). The reason for the difference was to encourage housing investment through thrift institutions and to recognize that commercial banks offered additional services that thrifts could not offer and thus could compensate depositors for the lower interest rate. These limits worked relatively well in maintaining thrifts' profitability for the next decade or so, but only because depositors with small amounts of savings had few other places to put their money.

The 1970s ushered in an era of high inflation and volatile interest rates. In that environment, a new form of savings account emerged--the money market mutual fund (MMMF)--that offered small investors interest rates that were not held down artificially by federal regulation but instead increased with inflation and market interest rates. Although these new funds did not have deposit insurance, they invested in high-quality liquid assets and thus did not present much risk. Moreover, the funds offered limited check-writing privileges.

Although MMMFs grew at the expense of thrifts' deposits throughout the 1970s, they received a large boost in 1979 when the nation suffered a second oil price shock. Faced with mounting inflationary pressures, the Federal Reserve responded by slowing the growth of the money supply, which caused short-term market interest rates to increase sharply. The

MMMFs were able to offer high interest rates to depositors, but thrifts were stuck offering much lower rates. And in the late 1970s, the gap between the two rates became so wide that large numbers of depositors pulled their money from the thrifts and opened accounts in MMMFs, a process known as disintermediation. This situation made it very difficult for thrifts to attract funds needed to finance the home mortgages in their portfolio.

The Congress responded to these problems by passing the Depository Institutions Deregulation and Monetary Control Act of 1980, which directed regulators to begin phasing out the interest rate ceilings on various types of deposit accounts. In addition, federal regulators lifted restrictions that limited the ability of federally chartered thrifts to invest in adjustable-rate mortgages. These steps, however, did not solve the immediate problems facing the thrifts. Much of the thrifts' portfolio was already tied up in low-yielding fixed-rate home mortgages. Although lifting the interest rate ceilings reduced disintermediation, it meant that the thrifts' mortgages had to be financed with high-cost deposits. The thrift industry was facing huge losses, and by the early 1980s, most of the industry's net worth (on a market-value basis) had been wiped out.

Deregulation and the Thrift Crisis

At the urging of some of the thrift industry's trade groups, the federal and state governments responded to the thrifts' troubles with several disastrous decisions. The Congress and the federal regulators lowered the minimum capital requirements for thrifts and broadened the definitions of capital for regulatory purposes to include items that did not meet the standards of the accounting profession. Federal and state authorities enacted legislation that allowed thrifts to enter new lines of business unrelated to making traditional home mortgages. Regulators promoted stock ownership of the thrift industry by eliminating restrictions on the minimum

number of shareholders needed to start up a new S&L or convert an existing mutual thrift to a stock form.¹³ And the federal government reduced the regulatory oversight of the industry.

Because the net worth of many thrifts had significantly deteriorated by the early 1980s, many thrifts found they had little to lose by investing in high-risk assets. In fact, these investments offered insolvent thrifts an opportunity to "gamble for resurrection." Moreover, to attract more funds, these institutions bid up the deposit rates, which hurt the profitability of healthy thrifts.¹⁴

The permissive rules for stock ownership also resulted in a significant change in the ownership structure of the industry.¹⁵ Large numbers of thrifts were converted from mutual organizations (which tended to be conservatively run) to stock thrifts (many of which took more risks). Many new stock institutions were set up as well. The stock institutions attracted a new type of thrift owner—one more prone to take risk. Under the new rules, owners were able to leverage a small capital investment into a huge portfolio of risky assets. Their risk taking ultimately imposed significant costs on the deposit insurance funds. Over the 1980-1988 period, insolvencies among stock S&Ls accounted for 77 percent of the cost (in present-value terms) of resolving failed institutions.¹⁶

Despite mounting problems, the Congress and federal thrift regulators did not move aggressively against troubled institutions. In-

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13. Mutual thrifts do not have shareholders; they are technically owned by the depositors. They tend to be more conservatively run than stock S&Ls, but also tend to have higher operating expenses.
 14. John Shoven, Scott Smart, and Joel Waldfoegel, "Real Interest Rates and the Savings and Loan Crisis: The Moral Hazard Premium," *Journal of Economic Perspectives*, vol. 6, no. 1 (Winter 1992).
 15. Lawrence Cordell, Gregor MacDonald, and Mark Wohar, *Corporate Ownership and the Thrift Crisis* (Washington, D.C.: Office of Thrift Supervision, January 1993).
 16. Barth, *The Great Savings and Loan Debacle*.

stead, they adopted a policy of forbearance that allowed insolvent institutions to remain open for years after reporting insolvency.

Competition from Fannie Mae and Freddie Mac

The thrifts also faced new competition in their mortgage-lending business. In the mid-1980s, Fannie Mae and Freddie Mac greatly increased their purchases of home mortgages--and their share of the market for fixed-rate conforming mortgages--as thrifts pulled back. For several economic reasons, the GSEs can bear credit risk more cheaply than many, es-

pecially small, thrifts (see Box 1). Large depository institutions with diversified portfolios of low-risk home mortgages, however, can also achieve some of the same economies.

The GSEs have much lower ratios of capital to assets than depository institutions and do not have to pay an insurance premium for their implied guarantee. As discussed in Chapter 3, these lower capital levels may give the GSEs a competitive advantage over some of the nation's best-run, most highly diversified and well-capitalized depository institutions. But there is great diversity among depository institutions. Some thrifts and banks receive subsidies through underpriced deposit insurance. And many depository institutions are not as well diversified and do not control their interest rate risk as well as the two GSEs. To present a comparable level of risk to the federal government, these banks and thrifts would have to hold much more capital than the GSEs.

Box 1. Economic Factors That Account for the Competitive Strength of Fannie Mae and Freddie Mac

There are three economic reasons that Fannie Mae and Freddie Mac can bear credit risk more cheaply than many thrifts. First, the two government-sponsored enterprises (GSEs) hold nationally diversified portfolios of mortgages and, thus, pool risks across the country. By contrast, many thrifts are small and hold mortgages on properties that are located in just a single area. Because the profitability of those thrifts is vulnerable to the vicissitudes of the local economy, it is more costly for them to bear risk.

Second, the GSEs economize on several types of costs. They have very large books of business and thus have exhausted the economies of scale in their financial operations. Moreover, unlike many private-label securitizers, they do not need to negotiate pool insurance on a deal-by-deal basis, which reduces the cost of insuring a mortgage pool.

Third, the mortgage-backed securities (MBSs) that the GSEs issue are highly liquid and marketable, which significantly reduces their financing costs. The liquidity of their securities is derived from the implied guarantee that they receive as a result of their GSE status and the sheer size of their outstanding MBS balances, which the implied guarantee makes possible.

The activities of Fannie Mae and Freddie Mac have brought some obvious benefits to borrowers in the housing market. Whatever the reasons, their emergence as major players in the home mortgage markets lowered the interest rates on fixed-rate conforming mortgages in 1986 by about 30 basis points relative to those on mortgages above the conforming limit.¹⁷ To put this change in concrete terms, a decline of 30 basis points in mortgage rates (from, say, 8.3 percent to 8.0 percent) lowers a borrower's monthly payment on a \$100,000 30-year fixed-rate mortgage by \$21 (or \$252 per year).¹⁸

17. Patric Hendershott and James Shilling, "The Impact of the Agencies on Conventional Fixed-Rate Mortgage Yields," *Journal of Real Estate Finance and Economics*, no. 2 (Kluwer Academic Publishers, 1989), pp. 101-115.

18. The overall welfare implications of this development are not clear because other housing policies may need reform. Federal and state tax codes greatly favor housing investment, and as a result, the nation may be allocating too much of its resources to housing at the expense of business investment. If securitization allows even more resources to flow into housing, then it could

Box 2.
**The Implications of Having Two Large
 Government-Sponsored Enterprises in Housing Finance**

The market for bearing the credit risk of conventional conforming fixed-rate mortgages is now dominated by two government-sponsored enterprises (GSEs): the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). In the early 1980s, these two GSEs securitized about 20 percent of all newly originated conventional conforming mortgages for one- to four-family residences; by 1989, they securitized roughly 70 percent of the market, which is a dramatic increase in their market share.¹

Control of a major portion of the mortgage market by two firms raises potential concerns about a concentration of market power. When a small number of firms dominate a market, there is always the possibility of noncompetitive pricing among the firms. In the mortgage markets, such pricing would mean that interest rates on home mortgages would be higher than fully competitive levels.

A noncompetitive outcome, however, is by no means certain. Some economic theories suggest that even a duopoly could price its services at the same levels as a fully competitive industry. Moreover, the GSEs face potential competition from private-label

securitizers and depository institutions. If the GSEs attempted to raise their guarantee fees significantly, these competitors might find it profitable to enter the fixed-rate conforming market, which would drive fees back down. Higher guarantee fees might also intensify Congressional scrutiny of the agencies.

Some empirical evidence suggests that the GSEs may not have priced their services at fully competitive levels in the 1980s.² Certainly, the firms have been able to provide high returns to their shareholders. Over the past five years, Fannie Mae had a 29 percent rate of return on equity (ROE), and Freddie Mac had a 23 percent ROE.

These returns seem high, but part of the ROE has to compensate investors for risk. Moreover, the GSEs may not earn such high returns in the future. Home prices will probably not appreciate in the future as much as they did in the 1980s, which means that mortgage borrowers will have less equity in their homes--and be more likely to default on their mortgages. Given these factors, it is difficult to determine whether the GSEs are currently pricing their services much above fully competitive levels.

1. Patric Hendershott, "The Market for Home Mortgage Credit: Recent Changes and Future Prospects," Working Paper No. 3548 (National Bureau of Economic Research, Cambridge, Mass., December 1990).

2. John Goodman and Wayne Passmore, "Market Power and the Pricing of Mortgage Securitization," Finance and Economics Discussion Series 187 (Federal Reserve Board, Washington, D.C., March 1992).

The increased competition and lower interest rates, however, have sharply reduced the profitability of certain aspects of thrifts' portfolio lending. Thrifts with average operating costs can no longer earn a market return by holding fixed-rate conforming mortgages.¹⁹ Only the best-run thrifts with the lowest operating costs can possibly remain in this segment of the market. Many thrifts continue to

earn profits by holding adjustable-rate mortgages and by originating mortgages that are later sold into the secondary markets. Thrifts also earn profits by holding nonconforming loans--"jumbo" mortgages that exceed the GSEs' purchase limits (currently \$203,150) and mortgages that do not meet the GSEs' underwriting guidelines.

be a step in the wrong direction. Of course, a preferable solution might be to change the tax code, not to keep inefficient producers in the market. See Edward Golding and Robert Van Order, "Regulation of Fannie Mae and Freddie Mac" (Federal Home Loan Mortgage Corporation, 1991).

19. Clifford Rossi, *The Viability of the Thrift Industry* (Washington, D.C.: Office of Thrift Supervision, December 1992); Wayne Passmore, "Can Retail Depositories Fund Mortgages Profitably," *Journal of Housing Research*, vol. 3, no. 2 (1992), pp. 305-340; Andrew Carron and R. Dan Brumbaugh, Jr., "The Viability of the Thrift Industry," *Housing Policy Debate*, vol. 2, no. 1 (1991), pp. 1-24.

Although Fannie Mae and Freddie Mac reduced the profitability of thrift lending on fixed-rate conforming loans, they are not responsible for the thrift crisis. That responsibility lies with the thrift industry for helping to formulate the system and then abusing it, with the government for its failed policies, and with the regulators for lax oversight. Some of the most spectacular failures came from institutions that made excessively risky investments that the regulators did not monitor or control. Institutions that stayed in mortgage lending could have remained profitable if they had cut their operating expenses or switched to adjustable-rate lending.

The dominance of two large GSEs in the fixed-rate mortgage market raises some public policy concerns that this market may not be fully competitive and, thus, that the GSEs could be capturing some of the benefits of their GSE status for their shareholders instead of delivering most of those benefits to mortgage borrowers. Although competition helped to lower mortgage rates to borrowers, a recent study suggested that the two GSEs may not have competed as fully as they could have in the past (see Box 2 on page 9). But it is difficult to determine whether additional competition between the two GSEs would significantly reduce current mortgage rates.

Current Activities of the Federal Home Loan Banks

The Federal Home Loan Bank System is a network of 12 independent regional banks that primarily provide loans, known as advances, to home mortgage lenders. Because the system is chartered as a government-sponsored enterprise, investors believe that its obligations carry an implied federal guarantee. As a result, the system can raise money relatively cheaply and provide advances at relatively low interest rates.

The traditional business of the FHLBs--making advances--is not risky. The banks have never suffered a loss on an FHLB advance. They appear to control their interest rate risk moderately well, according to data supplied by the banks, and their regulator, the Federal Housing Finance Board (FHFB), has sufficient powers to limit the system's risk of failure (see Box 3).

Despite this positive assessment, the system faces some perverse financial pressures that inadvertently undercut its willingness to provide advances to savings and loan associations. These pressures result from a \$300 million annual payment the system is required to make for resolving insolvent thrifts. The payment also creates incentives for the system to expand its activities and seek out new lines of business. The system has already greatly expanded the share of financial investments in its portfolio beyond its traditional size in order to generate enough income to meet the payment. These new activities increase the system's exposure to the risk of management shortcomings and operational failures, but it is hard to say whether this increase in risk is significant.

Membership in the FHLB System

In order to receive advances and other services from the FHLB system, a home mortgage lender has to become a member of one of the 12 regional FHLBs. The location of each member's corporate headquarters determines which regional bank it is eligible to join; it may not choose any other bank unless it is located near the border between two districts. Federal law requires a minimum stock purchase for membership, although members may hold additional stock.¹ The stock is not publicly traded but usually offers a dividend yield. Each bank chooses the exact mix of benefits to offer its members, including low-cost advances, high dividend yields, and access to a range of other banking services.

Membership was originally restricted to savings and loan associations, savings banks, and insurance companies. By law, federally chartered savings and loan associations are required to be members of the system. Savings banks and insurance companies, by contrast, may join voluntarily. State-chartered S&Ls are required by regulation to be members of the system until 1995, at which time they will be granted full voluntary member-

1. Although some banks prohibit members from directly purchasing excess stock, many members now hold large amounts of it because dividends are usually paid in the form of additional stock. Although these members can redeem the excess stock for cash, many have decided not to do so, in part because the returns on that stock are currently favorable.

Box 3. Regulation of the Federal Home Loan Banks

Throughout most of its history, the Federal Home Loan Bank (FHLB) System was regulated by the Federal Home Loan Bank Board, the same agency responsible for regulating the thrift industry. In response to the mounting losses in the deposit insurance fund for thrifts, the Congress passed the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) in 1989, which abolished the Bank Board and created a new agency, the Federal Housing Finance Board (FHFB), to take over the regulation and supervision of the FHLB system. FIRREA provided the FHFB with the explicit authority to accomplish four objectives: supervise the banks, ensure that the banks carry out their mission of housing finance, ensure that the banks remain adequately capitalized and able to raise funds in the capital markets, and ensure that the banks operate in a safe and sound manner. The Housing and Community Development Act of 1992 required the FHFB to make safety and soundness its primary purpose.

The Federal Housing Finance Board has broad powers. It has the authority to determine the compensation of the board members of each FHLB, suspend or remove any board member (or any bank employee), and liquidate or reorganize a bank if necessary. The FHFB has the statutory authority to reduce the number of district banks from twelve to eight if necessary. It also has the final word on each bank's budget, quarterly dividend payments, and applications for new members. Finally, the regulator has the authority to prevent members from redeeming their FHLB stock at par (face) value if such redemption would imperil the financial condition of the banks.

The decentralized nature of the FHLB system presents two potential problems for the regulator. First, because there is no governing board to oversee the management and coordination of the system, the FHFB has taken on some managerial responsibilities and become an advocate for the system--a situation that may reduce the FHFB's ability to be an "arm's-length" regulator. Second, because each bank has operated independently for so long, the banks' methods for managing information are largely incompatible, making it somewhat difficult for the regulator to monitor systemwide risk. Each bank, for instance, uses a slightly different method for tracking the collateral that backs FHLB advances or for estimating the prepayment risk of a mortgage-backed security. These incompatibilities may not pose a serious problem now because the system's current activities do not present high risks. But they would become major shortcomings if the system were given a new--and more risky--mission, as discussed in Chapter 5.

ship. (The Office of Thrift Supervision, however, has allowed at least one state-chartered thrift to leave already.) Although voluntary members may leave the system, current law prohibits them from rejoining the system for 10 years.

In 1989, the Congress extended voluntary membership to commercial banks and credit unions that had at least 10 percent of their portfolio in residential mortgage loans. As of December 31, 1992, 1,260 commercial banks were members of the system. Most of these banks are small institutions, with an average asset size of \$247 million (see Table 2).

The System's Primary Product: FHLB Advances

The system's most important activity is to provide advances to its members. By the end of 1992, the FHLB members held almost \$80 billion of outstanding advances, and interest income from FHLB advances was the system's largest source of revenue (see Tables 3 and 4). The FHLBs raise money for advances primarily by issuing bonds, known as consolidated obligations, to investors in international capital markets. These bonds are the joint-and-several liability of the entire FHLB system. If any particular bank becomes insolvent, the remaining banks have to pick up the insolvent bank's obligations. Although all banks are responsible for the others' liabilities, no individual bank has direct control over any other bank's risk taking.

Although FHLB advances remain the system's major product, the amount of advances made has fallen dramatically over the past two years, from \$117 billion in 1990 to \$80 billion in 1992--a 30 percent decline. Some of this drop-off may reflect the cyclical slowdown in the economy. Most of it, however, reflects a structural decline in the thrift industry. Just two years ago, at the end of 1990, some \$22 billion (or 20 percent) of the system's out-

standing advances was held by S&Ls that were in conservatorship or had negative ratios of tangible capital to assets, and another \$9 billion of advances was held by S&Ls with tangible capital ratios between zero and 1.5 percent. Since then, the Resolution Trust Corporation (RTC) has closed a significant number of these institutions and repaid their advances. The system will face another, though more modest, round of payoffs when the Congress provides the RTC with the funds needed to complete the resolution of insolvent thrifts. At the end of 1992, FHLB members in conservatorship or with tangible capital ratios of less than 1.5 percent held advances totaling less than \$2 billion. Weakly capitalized members (those with tangible capital ratios between 1.5 percent and 3.0 percent) held \$5 billion of the system's advances.

The loss of insolvent thrift members will probably be offset by the recruitment of commercial bank members. A large number of commercial banks have already joined the sys-

tem and, as of the end of 1992, had borrowed more than \$6 billion of advances. Furthermore, existing members (most of which are healthy) increased their holdings of advances by 11 percent over the 12-month period that ended in March 1993. Thus, the overall level of advances may not fall much further and will probably begin to grow over the next few years.

Why Do Members Use Advances?

FHLB advances are a relatively inexpensive source of wholesale funds for many members. Because of the FHLB system's status as a GSE and its relatively low risks, the system can raise money cheaply, currently paying only about 20 basis points (0.2 percentage points) above the rates on a Treasury security of comparable maturity. In addition, the interest rates on consolidated obligations are low because the interest income they generate is

Table 2.
Membership in the Federal Home Loan Bank System as of December 31, 1992

Type of Member	Members		FHLB Advances			FHLB Stock Held			Excess as a Percentage of Required
	Total Assets (Millions of dollars)	Average Asset Size (Millions of dollars)	In Millions of Dollars	As a Percentage of Assets	Total (Millions of dollars)	Required (Millions of dollars)	Excess (Millions of dollars)		
Insured by the Savings Association Insurance Fund									
Federally chartered S&Ls	1,340	722,975	540	59,638	8.25	6,448	5,530	918	16.60
State chartered S&Ls	589	104,547	177	4,960	4.74	885	748	137	18.36
Other	135	29,564	219	991	3.35	217	186	31	16.75
Insured by the Bank Insurance Fund									
Savings banks	238	131,939	554	6,830	5.18	958	820	138	16.83
Commercial banks	1,260	311,283	247	6,295	2.02	1,359	1,144	215	18.80
Credit Unions	26	4,661	179	46	0.99	20	19	1	3.10
Insurance Companies	12	7,302	608	7	0.09	24	23	1	4.60
Other ^a	22	1,194	54	1	0.05	7	7	b	2.40

SOURCE: Congressional Budget Office estimates using data from the Federal Housing Finance Board and the Federal Home Loan Banks.

- a. Includes state-insured institutions and uninsured institutions.
b. Less than \$0.5 million.

Table 3.
Balance Sheet of the Federal Home Loan Bank System, End of Year 1980-1992 (In millions of dollars)

	1980	1981	1982	1983	1984	1985	1986
Assets							
FHLB Advances	48,963	65,194	66,001	58,978	74,616	88,835	108,645
Cash	304	395	358	556	1,128	865	2,616
Investments							
Mortgage-backed securities	0	0	0	0	0	0	0
Other	4,328	8,157	12,575	9,841	17,584	19,243	17,438
Other Assets	<u>751</u>	<u>934</u>	<u>1,328</u>	<u>3,115</u>	<u>3,664</u>	<u>3,113</u>	<u>2,980</u>
Total	54,347	74,680	80,262	72,490	96,993	112,056	131,679
Liabilities							
Consolidated Debt ^a	37,268	54,131	55,967	48,931	65,085	75,610	89,590
Deposits	10,074	11,914	14,732	11,873	18,844	23,315	26,952
Other Liabilities	<u>975</u>	<u>1,835</u>	<u>2,149</u>	<u>3,952</u>	<u>4,359</u>	<u>3,026</u>	<u>3,329</u>
Total	48,318	67,880	72,848	64,756	88,289	101,951	119,871
Capital							
Stock	5,160	5,827	6,269	6,395	7,200	8,313	9,485
Retained Earnings ^b	<u>869</u>	<u>974</u>	<u>1,144</u>	<u>1,340</u>	<u>1,504</u>	<u>1,792</u>	<u>2,323</u>
Total	6,029	6,801	7,414	7,734	8,704	10,105	11,808

SOURCE: Congressional Budget Office using audited financial reports provided by the Federal Housing Finance Board.

exempt from state income taxes. (By contrast, the income from debt issued by the other two housing GSEs is taxed by states.) Furthermore, the FHLBs' operating costs are relatively low, which allows them to charge a relatively small markup.

Because the banks pay so little for their money, FHLB advances were actually cheaper than retail deposits (on an all-in cost basis) for thrifts with average operating costs in 1990.² The reason is that the costs of gathering retail deposits include more than just the interest rate; they also involve the costs of operating a branch network, paying for deposit insurance,

and meeting other miscellaneous expenses. Measures of all-in costs account for all of these factors. For the nation's most cost-efficient thrifts, advances were more expensive in 1990 because these institutions could gather deposits with relatively low overhead costs.

FHLB advances serve several purposes. First, they are a source of short-term liquidity, and some 40 percent of the system's outstanding advances at the end of 1992 had a maturity of one year or less. Second, advances also help members control interest rate risk. The FHLBs offer advances with a range of maturities, giving members flexibility in matching the durations of their assets with those of their liabilities. For example, a member could finance a long-term fixed-rate mortgage with a long-term fixed-rate advance and thus reduce its interest rate risk. The FHLBs, in turn, do

2. Jerry Hertzog and others, *Thrift Financing Strategies: An Analysis of the All-In Cost of Retail and Wholesale Funding for Thrift Institutions* (San Francisco: Federal Home Loan Bank of San Francisco, October 1990).

Table 3.
Continued

	1987	1988	1989	1990	1991	1992
Assets						
FHLB Advances	133,058	152,799	141,807	117,103	79,065	79,884
Cash	1,594	1,549	1,284	1,245	935	1,114
Investments						
Mortgage-backed securities	0	318	3,933	5,417	14,904	22,754
Other	16,538	16,663	29,979	38,863	56,836	56,380
Other Assets	<u>2,996</u>	<u>3,533</u>	<u>3,793</u>	<u>3,115</u>	<u>2,816</u>	<u>2,002</u>
Total	154,185	174,863	180,796	165,742	154,556	162,134
Liabilities						
Consolidated Debt ^a	116,386	136,513	136,798	118,437	108,149	114,652
Deposits	20,362	19,050	25,913	31,280	31,691	30,706
Other Liabilities	<u>3,693</u>	<u>3,780</u>	<u>3,880</u>	<u>4,400</u>	<u>4,020</u>	<u>6,245</u>
Total	140,440	159,343	166,591	154,117	143,860	151,603
Capital						
Stock	11,281	13,177	13,385	11,104	10,200	10,102
Retained Earnings ^b	<u>2,464</u>	<u>2,343</u>	<u>820</u>	<u>521</u>	<u>495</u>	<u>429</u>
Total	13,745	15,520	14,205	11,625	10,695	10,531

a. Minus passthroughs to the Federal Home Loan Mortgage Corporation (Freddie Mac).

b. Minus contributions to the Financing Corporation and the Resolution Funding Corporation.

not bear much risk because they fund long-term advances with long-term consolidated obligations. Third, the FHLBs have also begun to offer a new type of advance product that can protect their members against the prepayment risk of long-term mortgages and mortgage-backed securities.

Long-term advances are not very important to the system's total activities. Only about 18 percent of the outstanding advances at the end of 1992 had a maturity of five years or more. Although interest rates have fluctuated widely over the past several years, this percentage has stayed relatively stable, averaging 20 percent over the past eight years. Medium-term advances are used more frequently by members and can also help to reduce the interest rate risk, especially that of adjustable-rate mortgages and MBS classes (or tranches) with

short maturities. In 1992, about 40 percent of the system's advances were medium term, with a maturity between one and four years.

The FHLBs also help members to control their interest rate risk by intermediating interest rate swaps between members and third parties. An interest rate swap is an agreement to exchange the interest payments between short- and long-term financial instruments. Thus, a swap could allow a member to exchange the variable-rate interest payments from its deposits for a certain stream of fixed-rate payments. This type of exchange reduces the risk of lending fixed-rate mortgages. As of December 31, 1992, the FHLBs had intermediated approximately \$3 billion of interest rate swaps between members and third parties.

Table 4.
Income Statement of the Federal Home Loan Bank System, End of Year 1980-1992 (In millions of dollars)

	1980	1981	1982	1983	1984	1985	1986
Interest Income							
Interest and Fees on Advances	4,481	6,994	8,702	6,754	7,516	8,690	9,042
Investment Income	622	942	1,267	1,257	1,378	1,478	1,519
Other Interest Income	<u>36</u>	<u>49</u>	<u>55</u>	<u>47</u>	<u>263</u>	<u>219</u>	<u>198</u>
Total	5,139	7,985	10,024	8,059	9,157	10,388	10,759
Interest Expenses							
Interest on Consolidated Obligations	3,377	5,674	7,397	6,207	6,727	7,758	7,857
Interest on Deposits	1,290	1,686	1,597	1,382	1,331	1,492	1,617
Other Interest	<u>1</u>	<u>11</u>	<u>17</u>	<u>7</u>	<u>247</u>	<u>57</u>	<u>51</u>
Total	4,668	7,371	9,011	7,597	8,306	9,307	9,525
Noninterest Income and Expenses							
Noninterest Income							
Prepayment income	0	0	0	0	0	124	403
Other income	<u>15</u>	<u>14</u>	<u>60</u>	<u>409</u>	<u>204</u>	<u>114</u>	<u>210</u>
Total	15	14	60	409	204	238	613
Total Noninterest Expense	69	93	111	140	172	236	370
Net Amounts							
Net Interest Income	470	614	1,013	462	851	1,081	1,235
Net Noninterest Income	-54	-79	-51	269	32	3	243
Other Gain or Loss	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>-16</u>
Net Income	417	535	962	731	883	1,083	1,462

Advocates of the system often claim that access to FHLB advances allows members to hold much lower levels of liquid assets--and more mortgages--than would otherwise be possible, because members know that they can rely on advances in an emergency.³ Although

this claim may well be true, it is not supported by the evidence available so far. Certainly, thrift institutions that are members of the system hold less cash, deposits, and other liquid assets than commercial banks that are not members. This comparison, however, does not control for factors other than access to FHLB advances that may explain differences in liquidity.

3. Federal Housing Finance Board, *Report on the Structure and Role of the Federal Home Loan Bank System* (April 1993).

Table 4.
Continued

	1987	1988	1989	1990	1991	1992
Interest Income						
Interest and Fees on Advances	9,876	11,741	14,404	11,226	7,674	4,993
Investment Income	1,314	1,645	2,480	3,064	3,756	3,822
Other Interest Income	<u>157</u>	<u>128</u>	<u>133</u>	<u>118</u>	<u>98</u>	<u>53</u>
Total	11,347	13,514	17,017	14,409	11,528	8,869
Interest Expenses						
Interest on Consolidated Obligations	8,548	10,284	13,074	10,824	8,626	6,884
Interest on Deposits	1,388	1,567	1,850	1,999	1,787	1,166
Other Interest	<u>49</u>	<u>49</u>	<u>25</u>	<u>75</u>	<u>65</u>	<u>83</u>
Total	9,986	11,900	14,949	12,898	10,478	8,133
Noninterest Income and Expenses						
Noninterest income						
Prepayment income	147	65	69	151	360	392
Other income	<u>233</u>	<u>229</u>	<u>242</u>	<u>131</u>	<u>121</u>	<u>98</u>
Total	381	294	310	282	481	490
Total Noninterest Expense	403	460	599	371	332	267
Net Amounts						
Net Interest Income	1,361	1,615	2,068	1,510	1,050	736
Net Noninterest Income	-22	-166	-288	-89	149	223
Other Gain or Loss	<u>-10</u>	<u>5</u>	<u>4</u>	<u>47</u>	<u>-40</u>	<u>-109</u>
Net Income	1,328	1,454	1,783	1,468	1,159	850

SOURCE: Congressional Budget Office using audited financial reports provided by the Federal Housing Finance Board.

The easiest way to control for these factors is to examine the behavior of individual members before and after they joined the system. In 1992, about 830 commercial bank members joined the system. On December 31, 1991--before they joined--they held about 8.4 percent of their assets in a liquid form (cash, non-interest-bearing deposits, and federal funds).

One year later, liquid assets accounted for exactly the same percentage of their portfolio. A control group--commercial banks that did not join the system--also did not change its holdings of liquid assets over the same period. Thus, access to the FHLB system appears to have had little effect in reducing the amount of liquid assets that members chose to hold.

Who Uses Advances?

The vast majority of the system's borrowers are very large financial institutions. At the end of 1992, for example, almost 80 percent of the system's outstanding advances were held by members with \$1 billion of assets or more (see Table 5). More than half of the members with less than \$1 billion of assets had no outstanding advances at all.

This pattern is not totally surprising. Large savings institutions hold most of the industry's total assets, and they should account for most of the industry's borrowings. But why so many small members do not borrow from the system at all, even when the interest rates on advances are very attractive, is a mystery.

Why FHLB Advances Are Apparently Free of Credit Risk

In the past 60 years, the FHLBs have never suffered a loss on an advance, for several reasons. First and foremost, an FHLB advance is collateralized with assets that are worth much more than the advance itself. For instance, if a member pledges a conforming whole mortgage with a loan-to-value ratio of 80 percent, many FHLBs require the market value of the collateral to be about 125 percent of the value of the advance. (If the market value is not estimated, the member has to pledge much more collateral--typically 170 percent of the value of

the advance.) Moreover, federal statute limits the collateral to just four classes of high-quality assets:

- o Whole first mortgages on improved residential property not more than 90 days delinquent;
- o Securities issued by the federal government or one of its agencies;
- o Deposits in a Federal Home Loan Bank; or
- o Other real estate, provided that it has a readily ascertainable value, that the FHLB has first claim on it in the event of default, and that advances secured by such real estate do not exceed 30 percent of the member's capital.

The FHLBs have the right to call for more collateral if the market value of the collateral backing outstanding advances is deemed insufficient. In fact, during the mid-1980s, the FHLB of Dallas successfully used this right to protect itself from the effects of declining real estate values in its district. The banks regularly receive detailed financial reports and information from regulatory examinations of each member and thus can determine when a member is in financial trouble. They can also tap the member's FHLB stock if the collateral proves insufficient. In addition, the FHLBs have a statutory lien priority (that is, a "superlien") on the borrowing member's other assets. Thus, the FHLBs are first in line dur-

Table 5.
FHLB Advances and Stock, by Size of Member, as of December 31, 1992

Members' Assets	Advances		Stock	
	Millions of Dollars	Percentage of Total	Millions of Dollars	Percentage of Total
Less Than \$100 Million	1,746	2.22	624	6.29
Between \$100 Million and \$250 Million	3,702	4.70	1,025	10.33
Between \$250 Million and \$500 Million	5,117	6.50	985	9.93
Between \$500 Million and \$1 Billion	6,968	8.85	1,012	10.21
At Least \$1 Billion	<u>61,234</u>	<u>77.74</u>	<u>6,273</u>	<u>63.24</u>
All Members	78,767	100.00	9,919	100.00

SOURCE: Congressional Budget Office estimates using data from the Federal Housing Finance Board and the Federal Home Loan Banks.

ing bankruptcy proceedings (even before the Resolution Trust Corporation as receiver) and therefore have the best pick of an insolvent member's assets if the collateral is insufficient.⁴

Lending advances also does not present much interest rate risk to the FHLBs. Typically, the FHLBs fund advances by issuing bonds of similar duration. In addition, the policies of the Federal Housing Finance Board limit the estimated exposure of each bank's portfolio to interest rate risk so that a change in interest rates of 1 percentage point cannot reduce any bank's estimated net worth by more than 5 percent. The banks also charge prepayment penalties on advances to help to insulate the banks from prepayment risk.

The Interaction Between FHLB Advances and Deposit Insurance

The use of FHLB advances can impose some indirect costs because of how premiums for deposit insurance are assessed.⁵ Because deposit insurance premiums are based on members' deposits, members pay less for deposit insurance when they replace federally insured deposits with short-term FHLB advances. But the FHLBs do not take any of the risk. That risk remains instead with the deposit insurance funds. Thus, a member is able to pay less for deposit insurance without having to reduce its risk to the federal government (see Box 4).

This situation creates three problems. First, it can create an equity problem: two members with identical risks could pay different amounts for deposit insurance depending on their use of advances. Second, it can distort the decisions by members about the best way to raise funds, possibly reducing the

efficiency of the nation's credit markets. Third, it can lower the revenues collected by the nation's deposit insurance funds. Of course, over time, the Federal Deposit Insurance Corporation might be able to make up some of the lost revenue by increasing the premiums on deposits. But in doing so, the FDIC would impose a larger cost on retail deposits and on institutions that do not use advances.

This situation is not the result of any action taken by the FHLBs. Rather, the problem is that the insurance premiums are assessed on deposits. Charging deposit insurance premiums on deposits plus collateralized borrowings (or basing the premium on total assets) would solve it.

Some analysts have argued that deposit insurance premiums should not be assessed on FHLB advances because members use advances to reduce their exposure to interest rate risk, which benefits the deposit insurance funds. But 40 percent of the FHLB advances have a maturity of less than one year and do not provide much protection against interest rate risk. Moreover, the Office of Thrift Supervision has recently proposed a rule that would penalize thrifts with excessive exposure to interest rate risk. Under this rule, any thrift that used an FHLB advance to reduce its interest rate risk substantially would be rewarded.

Some analysts also argue that premiums should not be assessed against FHLB advances because advances make members more profitable. But the additional income could be released to shareholders as dividends, spent on higher salaries, or used for other expenses--not reserved against possible losses. In any case, the insurance funds have less premium revenue to cover their losses and pool risks. Taking this argument to its logical extreme would suggest that no lender should pay anything for deposit insurance because those premiums reduce the institution's profitability.

This analysis is not meant to imply that all members that borrow FHLB advances are paying less than the fair value for deposit in-

4. Dirk Adams, Rodney Peck, and Jill Spencer, "FIRREA and the New Federal Home Loan Bank System," *Santa Clara Law Review*, vol. 32, no. 1 (1992), pp. 17-60.

5. Lawrence White and Edward Golding, "Collateralized Borrowings and the Risks to FSLIC," *American Banker*, February 24, 1989; Department of the Treasury, *Modernizing the Financial System: Recommendations for Safer, More Competitive Banks* (February 1991).

Box 4.
Effect of Federal Home Loan Bank Advances
on the Deposit Insurance Funds

When a depository institution substitutes a Federal Home Loan Bank (FHLB) advance for a federally insured deposit, the premium income collected by the deposit insurance funds (the Savings Association Insurance Fund and the Bank Insurance Fund) declines, but the risk to the insurance funds does not drop commensurately. This point can be demonstrated using two simple balance sheets (see table).

Case 1. The member has \$100 of capital. Under current risk-based capital rules, the member could hold \$2,500 of whole mortgages, financed with \$2,400 of deposits. If the member is well capitalized and has a high rating by bank examiners, it will pay 23 cents to the deposit insurance fund for every \$100 of deposits. Thus, the deposit insurance fund receives \$5.52 in premiums from the member. If the member were charged a fair premium for deposit insurance, the expected losses to the deposit insurance fund would also be \$5.52.

To simplify the presentation, assume that the member's mortgage holdings are the only source of risk. Thus, instead of basing the premium on deposits, the deposit insurance fund could have charged 22.1 basis points on the member's mortgage portfolio and raised enough premium income to cover its losses.

Case 2. Now suppose the member decides to borrow FHLB advances. Its expected losses are still 22.1 basis points per mortgage dollar. If the member borrows \$1,050 of advances, the member, under the FHLBs' rules, must also purchase \$50 of FHLB stock. The Federal Deposit Insurance Corporation's risk-based capital rules require the member to set aside some capital for the FHLB stock investment, which means less money is available to support mortgage lending. The member's mortgage portfolio falls to \$2,480. The deposit insurance fund's expected losses are \$5.48, which is lower than in Case 1.

But the deposit insurance fund loses even more in revenues. Deposits are just \$1,380, which means that the deposit insurance fund collects only \$3.17 of

premium income and thus suffers an expected loss of \$2.31 every year. Although the premium was fair before the member borrowed FHLB advances, it covers only 58 percent of the expected costs when the member borrows \$1,050 of advances.

Interaction of FHLB Advances
and Deposit Insurance:
An Illustrative Example (In dollars)

	Case 1: No FHLB Borrowing	Case 2: FHLB Borrowing
Member's Balance Sheet		
Assets		
Mortgages	2,500	2,480
FHLB stock	0	50
Total	2,500	2,530
Liabilities		
Deposits	2,400	1,380
FHLB advances	0	1,050
Capital	100	100
Total, Liabilities and Capital	2,500	2,530
Federal Home Loan Banks' Balance Sheet		
Assets (Advances)	0	1,050
Liabilities (Consolidated obligations)	0	1,000
FHLB stock	0	50
Total, Liabilities and Capital	0	1,050
Deposit Insurance Fund's Income Statement		
Premium Income	5.52	3.17
Expected Losses	5.52	5.48
Net Income	0	-2.31
Memorandum:		
Premium as a Percentage of Expected Loss	100	58

insurance. To the contrary, as discussed in Chapter 3, some of the nation's healthiest banks and thrifts pay much more than the fair value for deposit insurance, even when they use advances extensively. But not all depository institutions are in this position. Indeed, some institutions pay too little for deposit insurance, and allowing these institutions to substitute advances for insured deposits enables them to pay even less.⁶

The situation is not unique to FHLB advances. Depository institutions also pay less for deposit insurance when they replace an in-

6. An interim regulatory policy prohibits the FHLBs from providing an advance to any member whose ratio of tangible capital to assets is less than zero, unless the advance is approved by the member's primary regulator. This policy eliminates the largest potential losses to the insurance fund, but does not solve the problem. As long as borrowing institutions have expected losses that are greater than the insurance premiums they pay, the insurance funds are losing revenues.

sured deposit with any collateralized liability, including reverse repos (loans brokered by Wall Street investment firms and collateralized with mortgage-backed securities) or federal funds. The premium income paid to the insurance funds falls, but the funds' risk does not because the loan is backed by high-quality collateral. For this reason, the insurance funds would not lose any additional premium revenue if members substituted an FHLB advance for another collateralized liability. Advances and other collateralized liabilities, however, are not perfect substitutes.

Community Investment and Affordable Housing

The FHLBs also provide funds to lenders who in turn finance community investment and affordable housing projects. These activities, however, are not a large part or major focus of the system. By law, the FHLBs are required to offer two special advance programs for community investment and affordable housing. The Congressional Budget Office estimates that the FHLBs provided slightly more than \$50 million of subsidies--or roughly 6 percent of their net income--to the two programs in 1992.

Community Investment Program

The FHLBs' Community Investment Program (CIP) focuses on home buyers and renters with family income that does not exceed 115 percent of the median income in their area, and on community-based organizations involved in commercial and economic development activities for low- and moderate-income families or for people who live in low- and moderate-income neighborhoods.

The FHLBs support these loans by providing advances priced at the FHLBs' cost of funds plus a markup for administrative expenses. The markup on CIP advances varies

over time and among districts, but according to the Federal Housing Finance Board, it ranges from zero to 10 basis points--much lower than the usual markup on a regular advance of between 25 and 45 basis points. Over the 1990-1992 period, the Community Investment Program provided about \$2.7 billion of advances. Assuming that the CIP advance is priced 25 basis points below the regular advance, the FHLBs may have provided a total subsidy (in terms of forgone income) of \$6.8 million over this three-year period through the CIP.⁷

Over the 1990-1992 period, the program created or rehabilitated more than 78,000 housing units. Virtually all of the money for the CIP was spent on residential housing; only about 2 percent was spent on economic and community development (see Table 6). This pattern reflects in part the demand for CIP advances from the system's borrowing members, most of which are savings and loan associations that are primarily involved in housing, not community development. At least 37 percent of the units financed through the CIP are unambiguously located in jurisdictions that were defined as "central cities" by the Office of Management and Budget.⁸ The true percentage is probably much higher. Although the FHLB collects project-level data on the CIP, about half of the CIP projects are statewide and cannot be unambiguously classified. Information on the location of each of the 78,000

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7. The true subsidy is hard to estimate, in part because it is difficult to estimate the bank's marginal costs, which could be more or less than the average costs of an advance. Moreover, to the extent that the CIP (and the Affordable Housing Program) help the system market its other products, they confer an offsetting benefit to the system that reduces the cost of the programs to the banks.
 8. These central-city definitions are commonly used by analysts in assessing the geographic distribution of housing benefits, and some recent laws provide housing benefits for residents of these areas. The Housing and Community Development Act of 1992, for instance, requires Fannie Mae and Freddie Mac to devote a certain percentage of their mortgage purchases for properties located in central cities. But these central-city areas cover a wide range of neighborhoods; they are not just what many people might consider inner-city neighborhoods. For example, every neighborhood in the District of Columbia--including Georgetown--would be classified as being in a central city.

housing units financed by the CIP is not available.

Affordable Housing Program

The second housing program in the FHLB system is the Affordable Housing Program (AHP), which provides subsidies to institutions that finance the purchase, construction, and rehabilitation of rental housing in which at least 20 percent of the funded units are affordable (and occupied) by households with very low income.⁹ The program also provides funds to promote home ownership for families with low and moderate income. Members are

required to pass the subsidy to the recipient on a dollar-for-dollar present-value basis.

Since 1990, the program has funded about 1,100 projects that have created or rehabilitated almost 53,000 housing units. The average subsidy was \$3,654 per unit. The program appears to be meeting its statutory goals (see Table 6). Over the 1990-1992 period, almost two-thirds of the units were for people whose income was 50 percent or less of the median income of their area; the remaining one-third went to people with low and moderate income. In addition, two-thirds of the units were multifamily rental properties, and most of the remaining units were single-family owner-occupied units. As with the CIP, it is impossible to determine the true percentage of AHP units located in central cities, although a lower-bound estimate is about half.

The subsidy for the Affordable Housing Program is based on the FHLBs' net income. The payment is a percentage of the FHLBs' net income from the preceding year but is subject to a minimum fixed amount. The percentage is set at 5 percent annually for the 1990-1993 period, 6 percent in 1994, and 10 percent in 1995 and beyond. The minimum fixed amounts are \$50 million annually for the 1990-1993 period, \$75 million in 1994, and \$100 million in 1995 and beyond. The FHLBs spent more than the required minimum in the first two years of the program--\$79 million in 1990 and \$60 million in 1991. The fixed minimum amount, however, became a binding constraint in 1992 and is expected to remain so for the foreseeable future.

The Role of Regular Advances in Supporting Low-Income Mortgages

The FHLBs may also help their members finance mortgages for low-income borrowers by

Table 6.
Characteristics of the Community Investment and the Affordable Housing Programs, 1990-1992

	Percent
Community Investment Program	
Type of Project ^a	
Residential housing	98
Economic and community development	2
Type of Unit ^b	
Owner occupied	72
Rental	28
Affordable Housing Program	
Type of Unit ^b	
Multifamily owner	3
Single-family owner	27
Multifamily rental	64
Single-family rental	6
Income of Recipient ^{b, c}	
Very low income	61
Low and moderate income	39

SOURCE: Congressional Budget Office using data from the Federal Housing Finance Board.

- a. Percentage of dollars spent.
b. Percentage of units financed.
c. Very low income is defined as income not exceeding 50 percent of the median income of the area in which the project is located; low and moderate income, as income not exceeding 80 percent of the area median.

9. Low and moderate income is defined as 80 percent or less of an area's median income. Very low income is defined as 50 percent or less of the median income.

Table 8.
Originations of Mortgages for the Purchase of One- to Four-Family Homes,
by Income of Borrower, 1991 (In percent)

Borrower's Income	Government-Backed Loans ^a		Conventional Loans	
	Number of Loans	Dollar Volume	Number of Loans	Dollar Volume
Less Than 80 Percent of Area Median	32	34	17	8
Between 80 Percent and 99 Percent of Area Median	21	18	11	8
Between 100 Percent and 120 Percent of Area Median	17	16	12	10
Greater Than 120 Percent of Area Median	29	31	57	72
Not Available	<u>2</u>	<u>2</u>	<u>3</u>	<u>3</u>
Total	100	100	100	100

SOURCE: Congressional Budget Office using data from the Federal Reserve Board collected by the Federal Institutions Examination Council under the Home Mortgage Disclosure Act.

a. Mortgages guaranteed by the Federal Housing Administration, Department of Veterans Affairs, and the Farmers Home Mortgage Association.

Moreover, if members use the untargeted advance money to finance home mortgages, borrowers with higher income are more likely to be the beneficiaries. In 1991, people with above-median income received about three-quarters of the dollars allocated to conventional mortgages under the conforming limit and retained in portfolio by originators (see Table 7).¹¹ Thus, if members allocated the dollars they receive from the FHLBs in those proportions, higher-income people would receive three dollars of the FHLBs' money for every dollar that went to lower-income people. Those are not well-targeted benefits.

The problem of poorly targeted benefits is not unique to the activities of the Federal Home Loan Banks. It is endemic to any housing policy that provides support to general mortgage-lending institutions instead of targeting the benefits toward intended borrow-

ers. The criticism can also be leveled against providing general untargeted support for the other two housing GSEs, Fannie Mae and Freddie Mac. The ultimate source of this problem is that higher-income people are more likely to take out a mortgage and, thus, are much more likely to benefit from an untargeted program.

By contrast, government-backed loans (mortgages insured by the Federal Housing Administration, the Department of Veterans Affairs, and the Farmers Home Mortgage Association) are much better targeted toward low-income borrowers than are conventional loans. For example, in 1991, people with income less than 80 percent of the median for their area received 34 percent of the dollars spent on newly originated government-backed loans (see Table 8). By contrast, only 8 percent of the dollars for newly originated conventional mortgages served these people. Most of these government-backed loans are packaged into securities guaranteed by Ginnie Mae and financed through the nation's secondary markets.

11. These statistics exclude jumbo mortgages (those above the conforming limits), which portfolio lenders actively finance. Thus, these estimates are lower bounds on the proportion of dollars allocated to high-income people.

Table 7.
Disposition of Conventional Mortgages for the Purchase of
One- to Four-Family Homes Below the Conforming Limit, 1991 (In percent)

Borrower's Income ^a	Held by Originator		Purchased by Fannie Mae		Purchased by Freddie Mac	
	Number of Loans	Dollar Volume	Number of Loans	Dollar Volume	Number of Loans	Dollar Volume
Less Than 80 Percent of Area Median	21	11	13	8	14	8
Between 80 Percent and 99 Percent of Area Median	12	10	12	10	13	10
Between 100 Percent and 120 Percent of Area Median	12	12	14	13	14	13
Greater Than 120 Percent of Area Median	51	64	58	67	58	67
Not Available	<u>3</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>1</u>
Total	100	100	100	100	100	100

SOURCE: Congressional Budget Office using data provided by the Federal Reserve Board. The data were collected by the Federal Financial Institutions Examination Council under the Home Mortgage Disclosure Act.

NOTE: Conventional home mortgages are mortgages that are not insured by the Federal Housing Administration, the Department of Veterans Affairs, or the Farmers Home Administration. The conforming limit refers to the largest principal balance on a mortgage that the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) are eligible to purchase. The conforming limit was \$191,250 in 1991.

a. Income of applicant is compared with the 1990 family income in each Metropolitan Statistical Area from the 1990 Census of Population and Housing, adjusted for changes in income between 1989 and 1991 in the nine census divisions as derived from the annual P-60 census reports.

providing funds through the regular advance program, although it is impossible to determine how much the FHLBs actually contribute. Indeed, most of the dollars from the FHLBs' regular advance program may go to high-income, not low-income, mortgage borrowers.

Of course, the FHLBs' members finance billions of dollars of home loans for people with low and moderate income and seem to play a unique role by holding some low-income conventional mortgages that Fannie Mae and Freddie Mac do not purchase. In 1991, for instance, about 14 percent of the conventional mortgages for one- to four-family residences purchased by Fannie Mae and Freddie Mac were for people with income below 80 percent of their area's median income (see Table 7). By contrast, these low-income mortgages accounted for about 21 percent of the conventional loans under the conforming limit that were retained in the portfolio of the origina-

tors and not sold into the secondary markets.¹⁰

But the link between mortgage loans to low-income people and FHLB advances is tenuous at best. There is no evidence that members who use advances more heavily are more likely to finance a low-income mortgage. More important, once the advances leave the FHLBs, it is impossible to trace the money to any particular use. Members may pass these benefits on to consumers in the form of lower origination costs and mortgage rates or, if the member has some local market power, may retain them for shareholders and employees. The advances could be used to finance any asset on a member's balance sheet, even those completely unrelated to housing.

10. The comparisons examine only loans under the 1991 conforming limit of \$191,250. This comparison thus shows the willingness of originators to hold the same type of loans as the two GSEs. Some of the difference reflects the fact that Fannie Mae and Freddie Mac do not purchase mortgages for mobile homes.

Financing the Resolution of the Thrift Crisis

Because the FHLBs were traditionally owned primarily by thrift institutions, the Congress tapped the retained earnings of the FHLBs on two occasions to help pay for the costs of resolving insolvent thrifts. These payments had a big impact on the FHLBs: the system's retained earnings fell from \$2.5 billion at the end of 1987 to \$0.5 billion at the end of 1990. These payments, however, account for only a small part of the estimated \$180 billion present-value cost (in 1990 dollars) of resolving the thrift crisis, most of which is falling on taxpayers' shoulders.¹²

The FHLBs' retained earnings were first tapped in 1987 by the Competitive Equality Banking Act. That act required the FHLBs to transfer \$680 million over the 1987-1989 period to the Financing Corporation (FICO). The Congress created FICO to borrow up to \$10.8 billion to recapitalize the Federal Savings and Loan Insurance Corporation, the failed insurance fund that covered depositors in savings and loan associations until 1989. The FHLBs' payment was used both to purchase zero-coupon bonds to pay off the principal of the FICO bonds and to cover FICO's administrative expenses.

The second occasion came in 1989 with the passage of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA), which required the FHLBs to contribute \$2.5 billion over the 1989-1991 period to capitalize the newly created Resolution Funding Corporation (REFCORP). REFCORP was established as an off-budget corporation to float \$30 billion of bonds. The proceeds of the bonds have been used to resolve insolvent thrifts.

FIRREA also directed the FHLBs to make an annual payment of \$300 million to

REFCORP to fund a portion of the interest (and initially, the principal) on the REFCORP debt until 2030. When FIRREA was passed in 1989, the \$300 million payment was a relatively small fraction of the system's net income, but its share has increased over time because the system's net income has fallen. In 1990, the payment absorbed roughly 20 percent of the system's net income; by 1992, it accounted for roughly 35 percent.

The decline in the system's net income reflects two factors. First, the system has much less capital than it did in 1989. Second, interest rates have fallen to relatively low levels, which means that the system earns less income for any given level of capital. As a result of both factors, the fixed payment absorbs a larger fraction of the income generated by the system.

Although the FHLBs are exempt from federal, state, and local income taxes, their dividends are fully taxable when received by members. Thus, the FHLBs' net income is implicitly "taxed" twice at the corporate level: first, when they pay REFCORP; second, when their members pay tax on the dividends received. If a bank decides to provide benefits to members in the form of low-cost advances, those benefits are also taxed. Such advances reduce members' interest expenses and raise their taxable profits. By contrast, most corporations are generally able to exclude from their taxable income 70 percent of the dividends they receive from another corporation. On average, the implicit tax that members paid on the FHLBs' 1992 net income may have been roughly 10 percentage points more than if their dividend income were subject to a 70 percent exclusion.¹³ For some districts, the

12. Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1994-1998* (January 1993). Present value is a single number that expresses the flow of payments over time in terms of an equivalent lump-sum payment made in one period.

13. As a simple illustration, assume that members face a 34 percent corporate tax rate less 8 percent for the deduction of bad debt and that the FHLBs pay 41 percent of their net income to REFCORP and the AHP (as they did in 1992). Thus, if the FHLBs have \$100 of net income, they could pay out \$59 of dividends to members. Members would pay another \$15 of tax on that income. The total (implicit) "tax" rate on the FHLBs' net income would be 56 percent. If members could exclude 70 percent of the dividends from the FHLBs, the total tax on the system would be 46 percent.

implicit "tax" was higher than this average; for others, it was lower.

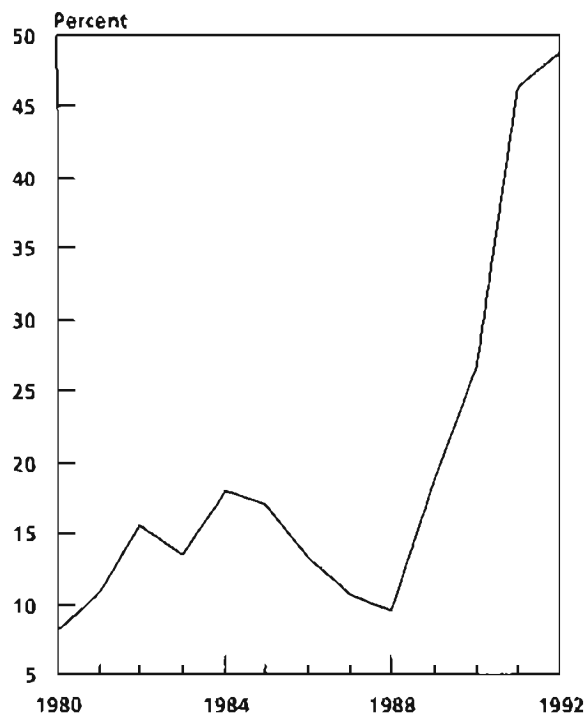
The \$300 million payment to REFCORP is not distributed proportionately among the banks. Instead, banks with higher percentages of members that borrow advances and are insured by the Savings Association Insurance Fund (SAIF) tend to pay more. Under current rules, all district banks must contribute 20 percent of their net income to the REFCORP payment. If the total amount of that percentage is less than \$300 million (as it has always been), the shortfall is allocated among the banks in proportion to each bank's share of the average advances to members insured by SAIF. Thus, the FHLB of Boston, whose membership is dominated by savings banks insured by the Bank Insurance Fund (BIF), was assessed only 24 percent of its 1992 net income for the REFCORP payment. By contrast, the FHLB of San Francisco, the majority of whose members are insured by SAIF, was assessed a much larger amount--57 percent of its net income.

Implications of These Costs

The REFCORP payment introduces some perverse incentives into the FHLB system. The payment creates pressure for the system to expand its activities--for example, by increasing its portfolio of mortgage-backed securities. Perhaps most important, the REFCORP payment affects the public mission of the banks because it discourages lending to SAIF-insured members.

Increased MBS Portfolios. The most significant change to the FHLBs in the past two years has been the dramatic increase in the share of investments in their portfolio as demand for advances has fallen. In 1989, the system held \$34 billion of investments, roughly 20 percent of its total assets. By 1992, investments had ballooned to \$79 billion, or 49 percent of total assets (see Figure 2). The major investments in 1992 included \$23 billion of mortgage-backed securities, \$30 billion

Figure 2.
Financial Investments by the Federal Home Loan Banks as a Share of Their Total Assets, 1980-1992



SOURCE: Congressional Budget Office using data from the Federal Housing Finance Board.

of term and overnight federal funds, and \$10 billion of commercial paper.

The \$300 million REFCORP payment is the main reason that the FHLBs have greatly increased their investments.¹⁴ Without the investments, the system would be in financial trouble. It would have difficulty paying a return on its stock, which could cause some members to leave the system. As those members left, the fixed REFCORP payment would impose an increasing burden on the members that remained in the system, which could

14. Another reason for the increased investments is that the system is flush with members' deposits. The banks invest these deposits in short-term marketable assets (such as federal funds) as part of a strategy to minimize liquidity risk. But since 1989, total investments have greatly exceeded these deposits.

cause more members to leave. To prevent these unfavorable dynamics from starting, all of the banks have increased their investment portfolios to earn additional income.

The banks earn income from their investments in a variety of ways. They bear a small amount of credit risk and a modest amount of interest rate risk. But they earn most of the income through risk-controlled arbitrage. For example, given current market conditions, they can issue callable consolidated obligations at roughly 25 to 30 basis points above Treasury securities and invest the proceeds of those bonds in MBSs that pay roughly 70 basis points above the Treasury securities. The callable debt protects against some of the prepayment risk of an MBS because the banks can take the debt back if the MBS prepays sooner than expected. As a result, the banks can currently earn some 40 basis points of income from these spreads without taking a large amount of interest rate risk.

To limit the risk of this activity, the FHLBs tend to invest in lower-risk short-term MBSs. In addition, the Federal Housing Finance Board prohibits the banks from holding the riskiest MBS tranches and generally limits each bank's MBS investments to two times its capital. The regulator, however, has recently provided an exception for the FHLB of Dallas, which has experienced extensive prepayment of advances. To achieve an orderly shrinkage of that bank's assets, the regulator now allows the bank to hold MBS investments equal to about five times its capital. The regulator expects the MBS portfolio of the Dallas bank to decline this year and eventually be subject to the standard limit on MBS authority.

Managing an arbitrage portfolio of MBS investments, however, can be tricky. It requires skilled portfolio managers and sophisticated financial models. Even a well-hedged MBS portfolio can experience losses in some interest rate environments. Thus, these new investments have introduced new management and operations risks into the system. The Federal Housing Finance Board monitors this risk by examining the banks. In 1992, the regula-

tor audited 10 of the 12 district banks and did not find any managerial shortcomings that could not be easily corrected. It is not possible, however, for the Congressional Budget Office to evaluate these risks independently without also auditing the system, which is beyond the scope of this study.

Expanded Membership. The \$300 million fixed REFCORP payment also encourages the banks to seek out new members for the system because, in a growing system, the relative burden of the REFCORP payment on individual members will decline. One way to attract new members is to provide above-market returns on FHLB stock. Five of the banks in 1992 paid an adjusted rate of return on equity (after the \$300 million REFCORP payment) in excess of 7 percent, even though interest rates were low last year and FHLB stock is not very risky relative to other stock investments (see Table 9). These high returns have encouraged members to hold relatively high levels of FHLB stock. Indeed, members in the FHLB of Seattle are holding almost 70 percent more stock than is required by law. The excess stock has accumulated because many of the banks pay dividends in the form of additional stock; members have decided not to redeem it for cash because it offers a very favorable yield.

These rates of return are especially attractive because the system provides valued services to members in addition to paying a return on FHLB stock. Members have easy access to liquidity and low-cost advances for risk management. If these services are as valued as the system's recent surveys of members seem to indicate, the true market return on FHLB stock needed to retain members is probably fairly low. Indeed, the FHLB of Boston paid roughly a 1 percent dividend yield in 1980 and 1981, when interest rates were very high, yet the bank lost hardly any of its voluntary members.

For these reasons, the system has been successful in attracting new members and retaining existing members, even in districts that pay relatively low returns. The system as a whole gained about 870 new voluntary mem-

Table 9.
Indicators of the FHLBs' Financial Performance in 1992

District	Number of Voluntary Members That ^a		Excess FHLB Stock ^c (As a percentage of required stock)	Financial Indicators (Percent)				
	Entered	Exited ^b		Return on Assets	Return on Equity ^d	Adjusted Return on Equity ^d		Dividend Yield
						Before REFCORP	After REFCORP ^e	
Boston	34	2	15	0.48	6.3	6.8	5.3	7.9
New York	25	2	13	0.72	11.4	10.8	7.5	9.5
Pittsburgh	90	3	15	0.59	10.8	10.6	7.7	8.9
Atlanta	85	10	24	0.67	9.5	9.1	6.0	6.2
Cincinnati	114	8	11	0.58	7.5	6.9	4.7	4.5
Indianapolis	53	1	21	0.76	10.9	11.2	7.4	11.3
Chicago	72	1	9	0.45	9.6	10.4	7.8	5.4
Des Moines	118	3	24	0.62	9.9	9.3	6.5	9.0
Dallas	136	3	17	0.24	4.1	4.0	1.3	3.9
Topeka	77	0	32	0.44	6.9	9.6	6.8	8.6
San Francisco	24	4	6	0.35	4.9	6.5	3.7	1.5
Seattle	39	0	68	0.86	13.3	13.0	9.1	12.2
Total	867	37	17	0.53	8.1	8.5	5.7	6.2

SOURCE: Congressional Budget Office estimates using data from the Federal Housing Finance Board and the Federal Home Loan Banks.

- The flow of voluntary members into and out of the FHLB system between December 31, 1991, and December 31, 1992.
- Excludes voluntary members in conservatorship; includes members that left through merger.
- As of December 31, 1992.
- Adjusted return on equity amortizes prepayment fees and other income. Return on equity recognizes this income when received.
- Excludes each bank's 1992 contribution to the \$300 million payment to the Resolution Funding Corporation.

bers and lost only 37 voluntary members (excluding those in conservatorship) in 1992. The FHLB of San Francisco lost only four voluntary members in 1992 and gained 24 new voluntary members, despite the fact that it had an adjusted rate of return on equity of 3.7 percent and a dividend yield of just 1.5 percent. (The low dividend yield of the FHLB of San Francisco in 1992 reflects some special one-time expenses related to its REFCORP obligation.)

Reluctance to Rebuild Retained Earnings. Because the Congress tapped the retained earnings of the FHLBs on two separate occasions to help pay for the resolution of the thrift crisis, the FHLBs are naturally reluctant to rebuild their reserves. Indeed, the banks have reduced retained earnings every year since 1989, and some of the banks have used these reserves to raise dividend payments to shareholders. At the end of 1992, the system held \$429 million of retained earnings--less than 0.3 percent of total assets. These drawdowns

have been approved by the regulator. As discussed in detail in Chapter 3, the system's low levels of retained earnings raise questions about the adequacy of its capital.

Increased Cost of Lending to SAIF-Insured Members. The current allocation formula lowers the FHLBs' return from making an advance to a SAIF-insured member relative to the return from making some other investment. If, for example, a bank reduces the interest rate on advances to generate additional demand, the bank will pay a larger share of the REFCORP burden, especially if it has many SAIF-insured members. No such penalty applies if the bank invests in a mortgage-backed security or in an advance specifically targeted toward a BIF-insured member. Thus, the REFCORP payment subverts some of the incentives for the banks to make advances to SAIF-insured members and creates an incentive for banks to provide more of the system's benefits through higher returns on FHLB stock rather than lower advance rates.

This situation undercuts the original purpose of the FHLBs. The FHLB system was set up largely to provide liquidity to members and to enable them to manage interest rate risk. It is not clear how incentives for the banks to invest in MBSs, rather than make advances to members, further these goals.

Can the System Pay REFCORP?

Although the REFCORP payment has altered the mission and activities of the FHLBs, the system can probably meet its \$300 million obligation to REFCORP under current statute. The charter of the FHLB system is the key asset that allows the system to earn above-market profits on its investments. That charter gives the FHLBs the ability to borrow at low interest rates, among other things. As long as the value of the FHLB charter is greater than the value of the payments for REFCORP and the Affordable Housing Program and the amount needed to provide a normal return for members' capital, the system has sufficient resources to meet its obligations.

Even if the FHLBs' charter had no value, the system would still be able to meet its financial obligations. The present value of the REFCORP payment is roughly \$4 billion. By comparison, the system has some \$10 billion of FHLB stock, which more than covers the payment. But if the FHLBs had to tap this stock, they would shift the costs of the REFCORP payment to their members and possibly to the deposit insurance funds as well. Moreover, as the next chapter will discuss in detail, it is not clear that the system can both meet the REFCORP payment and remain an exceptionally low-risk GSE.

Nonetheless, the REFCORP burden is unlikely to become much heavier than it is now. Although the system's net income will be lower in 1993 than in 1992, much of the decline has already occurred. In the first quarter of 1992, prepayment income on advances greatly boosted the system's net income.¹⁵ By the fourth quarter of 1992, prepayment income

dropped back to very low levels. The system's net income probably bottomed out in that quarter, at an average annual flow of about \$650 million. The fourth-quarter net income was also held down because the consolidated obligations that supported the prepaid advance did not come due until the end of the quarter, which kept interest costs high during most of the quarter. Net income will probably be in the \$750 million to \$850 million range in 1993, pushed up by increased borrowing of advances and another wave of prepayments.

Options for Changing the REFCORP Payment

The REFCORP payment could be altered in two general ways. First, the Congress could make the REFCORP payment proportional to income, which could reduce some of the perverse incentives facing the system. That would eliminate the destabilizing dynamics that a decline in membership could bring about and might reduce the reluctance of banks to extend advances to SAIF-insured members. But it is doubtful that the banks would reduce their MBS portfolios if the Congress simply eliminated the REFCORP payment. Those investments, after all, provide high returns to members. To reduce the investment portfolio, the Congress or the regulator would have to restrict the banks' investment authority. But their investment authority should not be eliminated. The banks need some restricted authority to manage their portfolios. In particular, the banks should be allowed to invest members' deposits in short-term liquid assets.

A bill before the House of Representatives, H.R. 1085, approaches this issue by changing the REFCORP payment from \$300 million to the lesser of 20 percent of net income and \$300 million. This bill would eliminate the perverse incentives discussed above. It would al-

15. Members--and the RTC--pay penalties when they prepay an advance. This income is recorded in the books when it is received, not amortized over the life of the prepaid advance.

so significantly reduce the amount that the FHLBs pay to REFCORP. The system's 1993 income is expected to be between \$750 million and \$850 million, which means that a 20 percent assessment would raise between \$150 million and \$170 million.¹⁶ Because current budgetary rules require pay-as-you-go financing, policymakers would probably have to make up the shortfall by cutting spending or increasing taxes. H.R. 1085 makes up the shortfall by imposing a special assessment on all SAIF-insured members. This option would redistribute the costs of the REFCORP payment among the members. Members in districts that currently have high REFCORP payments would be better off; members in districts with low payments would be worse off.

16. If the REFCORP payment was made proportional to income, the banks could reduce their REFCORP payments further by lowering interest rates on advances and reducing their net income. The Congress could prevent the banks from doing that by basing the tax rate on an assumed markup (say, 35 basis points) of advance rates over consolidated obligations, rather than the actual markup that the FHLBs charged.

Some people favor a second option that would set up a subsidiary of the system whose sole purpose would be to fund REFCORP through an MBS arbitrage portfolio. Although the subsidiary would have a large investment portfolio, each regional FHLB would not. Instead of running an investment fund, each regional bank could focus its attention on providing advances. To generate \$300 million, the MBS portfolio would probably have to be about \$75 billion, assuming an arbitrage spread of 40 basis points.

Under this option, the Federal Housing Finance Board would have to monitor a single MBS portfolio rather than 12 portfolios, which would reduce some of the burden on the regulator. But managing a large portfolio of MBS investments could be risky. To protect against risk, the subsidiary would have to be capitalized with funds that could not be redeemed until 2030. The major distributional issues involve deciding who should contribute the capital, whether they would receive any return on that contribution, and who would be responsible if the subsidiary failed.

Capital in the Housing Finance System

The capital standards of any financial institution with a federal guarantee should reflect the riskiness of its activities. This principle is important for two reasons. First, the capital of an institution protects the federal taxpayer from costly insolvencies. Second, comparable risk-based capital standards help to ensure that the success of institutions in a competitive environment reflects their natural economic strength rather than implied government subsidies.

Capital standards are part of a larger set of tools that the federal government uses to limit the risk of financial institutions. The government can also impose risk-based insurance premiums and subject the institutions to regulatory scrutiny. In a broad sense, these different tools are substitutes for one another; in theory, risk-based capital standards can provide the same degree of protection as risk-based premiums for deposit insurance. These tools can also be mixed and matched, and the final degree of protection reflects the combination of tools used.

The nation's depository institutions compete with Fannie Mae and Freddie Mac in bearing the credit risk of residential mortgages, yet banks and thrifts have to hold much higher levels of capital than the two government-sponsored enterprises. Moreover, the GSEs do not pay an insurance premium for their implied guarantee. This chapter assesses the extent to which this differential treatment puts depository institutions at a competitive disadvantage.

The Federal Home Loan Banks are also players in the nation's housing finance system, and their capital should also reflect the riskiness of their activities. But the nature of capital in the FHLB system is fundamentally different from the capital in depository institutions and the other two housing GSEs. In developing appropriate standards for the FHLBs, policymakers should also consider the quality of the FHLB capital.

Comparisons Among Depository Institutions, Fannie Mae, and Freddie Mac

Both depository institutions and the GSEs receive support from the federal government that allows them to borrow funds at rates lower than they could obtain from private markets. The thrift industry has federally insured deposit insurance, and the GSEs are perceived as having implied guarantees on their mortgage-backed securities and other obligations.

Since 1989, the Congress has passed several important laws that have improved the capital standards of depository institutions, Fannie Mae, and Freddie Mac. These laws establish minimum capital levels and require that their respective regulators set risk-based capital standards. They also require that a set of

risk-based deposit insurance premiums for depository institutions be phased in.

Federal Capital Requirements for Fannie Mae and Freddie Mac

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (Title XIII of Public Law 102-550) establishes new federal capital requirements for Fannie Mae and Freddie Mac. The statute imposes minimum and critical capital ratios on the GSEs and directs a new Office of Federal Housing Enterprise Oversight in the Department of Housing and Urban Development (HUD) to establish risk-based capital requirements for the enterprises. The law gives the director of the new office various enforcement powers but makes the authority to exercise those powers largely contingent on Fannie Mae and Freddie Mac's falling out of compliance with the capital requirements.

Minimum and Critical Capital Standards. The minimum capital standard requires Fannie Mae and Freddie Mac to maintain stockholders' equity greater than or equal to the sum of 2.5 percent of aggregate on-balance-sheet assets and 0.45 percent of mortgage-backed securities and other off-balance-sheet assets (adjusted to reflect their credit risk relative to that of MBSs, as determined by the director of the new office). The critical capital standard requires the GSEs to maintain stockholders' equity greater than or equal to 1.25 percent of on-balance-sheet assets and 0.25 percent of MBSs and other off-balance-sheet assets (also adjusted to reflect credit risk).

Risk-Based Capital Requirements. The director also must establish risk-based capital requirements for Fannie Mae and Freddie Mac, using a stress test that the law outlines. In broad terms, the test would assume that each GSE experienced default losses similar to those in the most severe regional economic downturn on record, and that interest rates rose by the lesser of 75 percent or 600 basis points or fell by the lesser of 50 percent or 600

basis points in the first year of the test and remained at that level. If future interest rates were significantly and persistently higher than they have been recently, the test could assume larger changes in rates. The statute also gives the regulator discretion to adjust spreads between short-term and long-term interest rates during the stress test.

The risk-based standards would require the enterprises to have sufficient total capital initially to remain solvent through the end of the 10th year of the stress test, plus have an additional 30 percent of that capital to cover management and operations risks. In conducting the test, the director cannot assume that the enterprises purchased any new mortgages during the test period until the issue has been studied by several government agencies. The law defines total capital as stockholders' equity, a general allowance for foreclosure losses, and other amounts from sources of funds that the director determines are available to absorb losses. The new regulator is required to implement these risk-based standards by 1994.

Capital Zones and Enforcement Powers. The statutory minimum and critical capital ratios and the risk-based capital requirement define four capital zones for Fannie Mae and Freddie Mac. Under the law, either GSE would be adequately capitalized if it met both the risk-based and minimum capital requirements, undercapitalized if it failed the risk-based standard but met the minimum capital standard, severely undercapitalized if it failed both the risk-based and minimum standards but met the critical capital standard, and critically undercapitalized if it could not meet any of the capital requirements.

The director would possess a range of discretionary and mandatory enforcement powers, the availability of which would depend on the zone in which either GSE's capital fell. For example, the director could require an undercapitalized enterprise to submit and carry out a plan to restore capital; the director would be required to place a critically undercapitalized GSE in conservatorship. The scheme--four

zones and a spectrum of mandatory and discretionary enforcement actions tied to them--resembles in broad outline the provisions of the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) that authorize specific enforcement actions for the federal banking agencies when federally insured banks and thrifts are undercapitalized.

Federal Capital Standards for Depository Institutions

The federal government controls the risk of insured depository institutions by using a combination of risk-based capital standards, risk-based deposit insurance premiums, and an examination and supervisory process.

Risk-Based Capital Standards for Credit Risk. In 1988, federal banking regulators agreed to an international set of risk-based capital standards to cover credit risk. Those standards were phased in over a period of years and became fully effective for banks at the end of 1992. For thrifts, the standards are largely in place, although the rules for treating goodwill and equity (and some subsidiary) investments will not be fully phased in until 1994. (Ultimately, thrifts will not be allowed to count goodwill as capital and will have to hold one dollar of capital for each dollar of equity.) Under the new standards, the total capital of every depository institution has to be at least 8 percent of its risk-weighted assets.¹ Each asset is assigned a particular weight that reflects its perceived riskiness. Treasury securities, for instance, receive a zero weight; because they present no credit risk, lenders do not have to hold capital against them. MBSs guaranteed by Ginnie Mae also carry a zero weight.

1. Total capital generally consists of common stock, preferred stock, retained earnings, qualified subordinated debt, and loan loss reserves limited to no more than 1.25 percent of risk-weighted assets. Regulators also require that each lender's Tier 1 capital (common stock, retained earnings, noncumulative perpetual preferred stock, and minority interests in equity accounts of subsidiaries that are fully consolidated) be at least 4 percent of risk-weighted assets. Thrifts are also allowed to count a few additional items as capital.

Commercial loans, by contrast, have a 100 percent risk weight and thus face the full 8 percent capital requirement. Mortgage-backed securities guaranteed by Fannie Mae and Freddie Mac have a 20 percent weight, as do private-label MBSs that carry a rating of AA or better. In essence, that weight means that lenders have to hold 1.6 percent capital against MBSs guaranteed by the GSEs. Whole mortgages for one- to four-family residences have a higher risk weight--50 percent--which implies that 4 percent capital is needed to support these assets (see Box 5 for a discussion of how these risk weights might affect mortgage holdings).

Box 5. New Incentives to Hold Mortgage-Backed Securities

Current capital standards require that a depository institution hold more capital against its whole mortgages than against its mortgage-backed securities (MBSs) guaranteed by Fannie Mae and Freddie Mac. In theory, such differentials in capital requirements may create incentives for institutions to prefer safer assets to riskier ones and, in particular, to prefer securitized mortgages to whole mortgages. These incentives are partially offset, however, by the guarantee fee that the two government-sponsored enterprises charge, which lowers the interest rate on an MBS relative to the rate on whole mortgages.

In practice, these differential capital standards may not have a large effect on mortgage holdings. Although the evidence is still sketchy, a recent study found that well-capitalized healthy thrifts did not substantially change the mix of whole mortgages and MBSs in their portfolios during the 1991-1992 period as the new rules were being phased in.¹ According to the study, only thrifts that were undercapitalized (but still healthy) responded to the new rules and substituted MBS investments for whole mortgages.

1. Wayne Passmore, "The Influence of Risk-Adjusted Capital Regulations on Asset Allocation by Savings and Loans," Finance and Economics Discussion Series 213 (Federal Reserve Board, October 1992).

The standards do not differentiate among assets assigned to the same risk class, although the credit qualities of such assets can vary significantly. For example, a commercial loan to a business with a strong balance sheet and a healthy stream of profits is much less risky than a loan to a troubled business. Yet the standards require depository institutions to hold the same amount of capital against both loans. Because capital standards do not fully reflect risk, the federal government also relies on regulatory oversight to limit the risk taking of depository institutions.

Minimum Leverage Ratios. In addition to the risk-based capital regulations, depository institutions must hold a minimum amount of capital in relation to assets. Institutions with the highest ratings from examiners must hold at least 3 percent Tier 1 capital (largely common stock and retained earnings) against total (unweighted) assets. The leverage ratio for banks with lower examiner ratings can be 1 to 2 percentage points higher, depending on the rating. Thrift examiners also have the authority to set higher capital standards on a case-by-case basis.

Risk-Based Deposit Insurance Premiums. FDICIA called upon the Federal Deposit Insurance Corporation to promulgate a risk-

based deposit insurance premium. On September 23, 1992, the FDIC proposed a transitional schedule for risk-based deposit insurance, which became effective on January 1, 1993. FDICIA requires that a permanent schedule be adopted by January 1, 1994.

The premium assessments in this new schedule depend on both the capitalization of the depository institution and its examiner rating. At present, there are three capital ratings (well capitalized, adequately capitalized, and less than adequately capitalized) and three examiner ratings (healthy, supervisory concern, and substantial supervisory concern). These classifications form a matrix of nine categories, and deposit insurance premiums vary among the categories, ranging from 23 basis points to 31 basis points (see Table 10).

Assessments for Interest Rate Risk. The bank and thrift regulators are developing regulations that will attempt to limit interest rate risk. The Office of Thrift Supervision (OTS) initially proposed a rule on December 31, 1990. That rule would have required thrifts to hold additional capital above the risk-based standards. Specifically, the additional capital had to cover one-half of the loss in the market value of portfolio equity from an instantaneous and permanent interest rate

Table 10.
Schedule for Deposit Insurance Premiums (In basis points)

Capital Group	Supervisory Subgroup		
	Healthy	Supervisory Concern	Substantial Supervisory Concern
Well Capitalized ^a	23	26	29
Adequately Capitalized ^b	26	29	30
Less Than Adequately Capitalized ^c	29	30	31

SOURCE: Federal Deposit Insurance Corporation.

- Total capital of at least 10 percent of risk-weighted assets (RWA); and Tier 1 capital (largely common stock and retained earnings) of at least 6 percent of RWA; and Tier 1 leverage ratio of at least 5 percent of total assets.
- Institutions that do not meet the standards for "well capitalized" but that have total capital of at least 8 percent of RWA; and Tier 1 capital of at least 4 percent of RWA; and Tier 1 leverage ratio of at least 4 percent of total assets.
- Total capital less than 8 percent of RWA; or Tier 1 capital less than 4 percent of RWA, or Tier 1 leverage ratio less than 4 percent.

shock of 200 basis points. The interest rate shock was either an increase or decrease in interest rates, whichever produced the larger effect.

The Office of Thrift Supervision revised the proposed regulation on September 3, 1992. The revised rule does not require thrifts to hold any additional capital for a "normal" exposure to interest rate risk, defined as a change in portfolio equity of 2 percent or less in response to an interest rate shock of 200 basis points. If the thrift's portfolio equity changes by more than 2 percent, the thrift has to hold enough capital to cover one-half of the loss in portfolio equity above the 2 percent threshold. Banking regulators are considering a broadly similar approach for controlling interest rate risk at the nation's commercial banks.

Evaluation of the New Standards

The risk-based standards for Fannie Mae, Freddie Mac, and depository institutions that have emerged in the past two years are clearly a step in the right direction. Important technical issues on how to apply these standards have yet to be decided and, thus, it is impossible to provide a final analysis of how effectively they will control risk, let alone to offer a definitive comparative analysis of the standards. But some preliminary observations can be made.

The GSEs Do Not Need to Hold as Much Capital as Many Depository Institutions. The GSEs are exposed to much less risk than most thrifts for three reasons. First, Fannie Mae and Freddie Mac hold nationally diversified mortgage portfolios. Diversification makes a big difference to risk: one study found that lenders with diversified mortgage portfolios need to hold only one-third to one-half of the capital required of lenders with mortgages concentrated in just one major region of the country to present the same risk of failure.²

Second, Fannie Mae and Freddie Mac also are probably exposed to less risk from large changes in interest rates than many depository institutions. The interest rate risk of a mortgage-backed security is almost entirely borne by the holder of the security, not the GSE. The GSEs are, however, exposed to interest rate risk from mortgages held in portfolio. Indeed, Fannie Mae was insolvent on a market-value basis in the early 1980s because of such risks. But these risks are lower today. Moreover the GSEs tend to fund these mortgages with liabilities of similar durations and use callable debt to reduce the prepayment risk. By contrast, thrifts' primary source of funds is short-term deposits, which--if used to fund a fixed-rate long-term mortgage--greatly increase exposure to interest rate risk. Moreover, adjustable-rate mortgages do not fully protect thrifts from interest rate risk because these mortgages usually feature both annual and lifetime caps on the mortgage rates that lenders can charge borrowers. If changes in interest rates are exceptionally large, thrifts holding these mortgages could suffer significant losses.³

Third, the GSEs generally have better methods of identifying and controlling risks than do many thrifts and, as a result, may be exposed to lower management and operations risk. Few depository institutions use the sophisticated financial methods for identifying and controlling risk that are common at the GSEs.

The GSEs' Stress Test Limits Quantifiable Risks. The stress test that will be used to establish risk-based capital standards for Fannie Mae and Freddie Mac probably limits the

2. John Quigley and Robert Van Order, "Defaults on Mortgage Obligations and Capital Requirements for U.S. Savings Institutions: A Policy Perspective" (mimeograph, April 1990).
3. Patric Hendershott and James Shilling, "The Continued Interest Rate Vulnerability of Thrifts," Working Paper No. 3415 (National Bureau of Economic Research, Cambridge, Mass., August 1990).

incentives for taking new risks on the margin better than the new regulations proposed or adopted for depository institutions. The proposed OTS rule for interest rate risk, for example, is based on an interest rate shock of 200 basis points, not the 600 basis points in the GSE test. If depository institutions had to meet the GSE test, then thrifts that funded a 30-year mortgage with one-year debt would need to hold capital in excess of 20 percent to pass the test.⁴ Moreover, deposit insurance premiums do not vary enough with the riskiness of the institution. Several studies have shown that the nation's weakest institutions are paying far too little for deposit insurance, even at the top rate of 31 basis points.⁵

Standards Provide an Unknown Amount of Protection Against Nonquantifiable Risks. Not all risks can be easily quantified. Management failures, sloppy operations, or fraud can result in significant losses to any financial institution. But these risks cannot be detected in a stress test or risk-based capital standard.

To cover such risks, depository institutions (even well-run banks and thrifts) are required to hold at least 3 percent Tier 1 capital against their on-balance-sheet assets. Moreover, bank and thrift examiners are given substantial leeway to raise these minimum standards if,

in their supervisory judgment, the institutions present a greater risk to the federal government. Unfavorable supervisory judgments also increase the assessments that depository institutions must pay for deposit insurance.

The GSEs face a different set of standards. To cover management and operations risk, they have to hold 30 percent more capital than needed to pass their stress test. This approach assumes that management and operations risks are proportional to risk-based capital. The GSEs also have to hold 2.5 percent capital against on-balance-sheet assets and 0.45 percent capital against off-balance-sheet assets. The practical effect of these rules is that the GSEs operate with lower levels of capital to assets than most depository institutions. Moreover, the GSEs' new regulator has less discretion than bank and thrift examiners.

Some of these differences may be justified. The GSEs' charters limit their activities. They are less able than depository institutions to enter new markets and start new ventures--activities that often involve hidden risks of management and operations failures. Moreover, the GSEs' portfolios are relatively homogeneous, which means that more of their risks can be quantified through stress tests.

But the GSEs are not immune to nonquantifiable risks. Freddie Mac in 1989 and 1990, for instance, suffered losses in its multifamily housing program, in part because of shortcomings in the design and managerial control of the program.⁶ A general deterioration of the market for multifamily properties also accounted for a significant fraction of these losses. In the mid-1980s, Fannie Mae experienced some losses on loans from the Equity Program Investment Corporation as a result of nonquantifiable risks.

The true amount of capital that is needed to protect against such nonquantifiable risks is, by definition, unknown. Indeed, the current

4. For more information on the drawbacks of the proposed OTS rule for interest rate risk, see Chester Foster, Edward Golding, and Robert Van Order, "Mortgage Investment Risk and Capital Adequacy: Implications for Deposit Insurance" (paper presented at the American Real Estate and Urban Economics Association Meetings, Washington, D.C., May 26-27, 1992).

5. Options-pricing methods, for example, suggest that in December 1990 the riskiest 5 percent of the S&L industry should have paid at least 333 basis points for deposit insurance, and the riskiest 5 percent of the banking industry should have paid at least 144 basis points. Of course, forcing the institutions to pay the fair premiums would drive these institutions into insolvency, which could be costly--resolution costs always gobble up some of the firm's assets. But allowing them to stay open presents a continuing risk to the taxpayer. See Lawrence Cordell and Kathleen King, "A Market Evaluation of Risk-Based Capital Standards for the U.S. Financial System," Finance and Economics Discussion Series 189 (Federal Reserve Board, March 1992). Also see Office of Management and Budget, *Budgeting for Federal Deposit Insurance* (June 1991).

6. General Accounting Office, *Federal Home Loan Mortgage Corporation: Abuses in Multifamily Program Increase Exposure to Financial Losses* (October 1991).

rules are essentially arbitrary. Whether the different amounts currently required for depository institutions and for the GSEs will prove sufficient to protect against their respective risks is unknown.

Some Well-Run Depository Institutions Are Penalized. Well-capitalized and conservatively run depository institutions are probably paying much more than the fair value for deposit insurance. These well-managed lenders hold relatively diversified portfolios of mortgages and do not take large interest rate bets.⁷ Some of these institutions receive high credit ratings on their uninsured debt but have to pay 23 basis points for deposit insurance. For the annual premium of 23 basis points to be fair, the probability that these lenders would fail within a year would have to be almost 1 percent (assuming a 30 percent loss upon insolvency). That is a very high implied probability for an institution with highly rated debt.

Moreover, some options-pricing models suggest that institutions that are run conservatively should be paying no more than a single basis point for deposit insurance, instead of the 23 basis points that they currently pay.⁸ These estimates are consistent with some of the results from simulation models that suggest that a thrift with 4 percent capital, a diversified portfolio of residential mortgages with loan-to-value ratios of 90 percent, and moderately controlled exposure to interest rate risk should pay only a few basis points for deposit insurance (assuming no management and operations risk).⁹ Although both options-pricing models and simulation models can be

criticized, some of the nation's depository institutions are surely paying much more than the fair value for insurance and, thus, are subsidizing the weaker institutions.

The reason that premiums for well-capitalized, conservatively run depository institutions are higher than would be justified by their riskiness alone is that policymakers want the thrift industry to pay for as much of the recapitalization of the insurance funds as possible. FDICIA requires that the Bank Insurance Fund be recapitalized to 1.25 percent of the industry's estimated insured deposits within 15 years and that the Savings Association Insurance Fund be recapitalized to the same percentage within a reasonable amount of time, which the FDIC has taken to mean 15 years as well. To meet this objective without relying on general revenues, premiums for deposit insurance on healthy thrifts have to be higher than the fair premium.

These payments, of course, impose costs on depository institutions that their competitors do not have and put a burden on the regulators to ensure that the institutions do not increase their risk in an effort to shift the higher costs back to the insurance funds. Thus, even if Fannie Mae and Freddie Mac received only a small subsidy from the implied federal guarantee of their securities, they would still be better off competitively than thrifts that were paying more than the fair value for deposit insurance.

Moreover, current capital rules and deposit insurance are set up so that almost no depository institution--no matter how conservative its lending patterns--would be able to bear the credit risk of conforming mortgages as cheaply as Fannie Mae or Freddie Mac. No matter how diversified it became, no matter how little interest rate risk it took (by using long-term FHLB advances), no matter how much it exhausted scale economies, no matter how well it was managed, a portfolio lender by law would still have to hold more capital against its mortgages than Fannie Mae and Freddie Mac.

7. According to September 1992 estimates by OTS, almost half of the institutions insured by the Savings Association Insurance Fund would suffer no more than a 12 percent decline in their marked-to-market net worth if interest rates went up 200 basis points. The net worth of many of these thrifts, however, would probably decline much more with larger interest rate shocks because many thrifts hold adjustable-rate mortgages with annual caps of 200 basis points.

8. Cordell and King, "A Market Evaluation."

9. Foster, Golding, and Van Order, "Mortgage Investment Risk."

Can Capital Standards Be Made Comparable?

Although it would be desirable, in principle, to establish comparable standards for the GSEs and depository institutions by using more sophisticated risk-based premiums, such standards would be difficult to implement. First, there are thousands of depository institutions, and setting individual deposit premiums for each one of them would be costly and time-consuming.

Second, geographic diversification and loan-to-value ratios are the key determinants of mortgage defaults and losses, and the calculation of a fair deposit insurance premium would surely have to take these factors into account. But depository institutions are not required to report information on either the geographic distribution of the outstanding mortgages in their portfolios or the percentage of mortgages in different loan-to-value classes.

Third, the fair premiums have to be calculated using default data on well-defined products. Although a wealth of data are available on conventional fixed-rate 30-year mortgages, no data exist for developing similar estimates for the full range of products that depository institutions now hold.

Last, financial institutions confront several other risks that cannot be so easily quantified. These risks include management and operations risk and the risk of regulatory failure. These risks may be higher for depository institutions than for the GSEs, but it is hard to say how much higher. The capital add-ons for management and operations risk are essentially arbitrary for both the GSEs and depository institutions.

Capital in the Federal Home Loan Bank System

The FHLBs are not subject to any risk-based capital requirements, although they face some

capital rules that make the system appear to be extremely well capitalized relative to the other GSEs and other financial institutions. But most of the FHLBs' capital is FHLB stock, which is largely financed by federally insured deposits and thus is ill-suited to absorbing risk. Indeed, the only capital in the system that can absorb losses without increasing the risk to the deposit insurance funds is the system's retained earnings, which currently amount to just 0.3 percent of total assets. Of course, the system is not exposed to much risk either. But the growth in the system's MBS investments, combined with exposure to some interest rate risk, raises questions about whether this level of retained earnings is adequate.

These conclusions reflect a change in the views of the Congressional Budget Office on the capitalization of the FHLBs. In a 1991 report, *Controlling the Risks of Government-Sponsored Enterprises*, CBO concluded that the FHLBs were well capitalized relative to their risks and relative to the other housing GSEs. That analysis examined the banks' capitalization with respect to the FHLBs alone, without considering the peculiar nature of the FHLB capital and its potential spillover risks to the deposit insurance funds. The current report broadens the analysis and includes a more global analysis of the federal government's risk exposure.

Capital Rules in the FHLB System

The FHLBs and their members are subject to two types of capital rules. First, the members are required to purchase a minimum amount of FHLB stock. Second, the banks face a maximum leverage ratio. The standards are not based on the system's quantifiable risks, nor are they binding constraints on the system at present. At the end of 1992, members held 17 percent more stock than they were required to purchase. At the same time, the system was leveraged about 14 to 1, much less than the 20 to 1 maximum leverage permitted by law.

Thus, making these rules less stringent, as some people have proposed, would have little near-term effect on the system. It may have an effect in the long term, however.

Minimum Stock Purchase. All members in the system are currently required to purchase a minimum amount of FHLB stock. Members who are qualified thrift lenders (QTLs) are given preferential treatment under these rules. QTL members are generally those institutions with at least 65 percent of their portfolio in home mortgages and related assets. (Technically, a QTL member must have a "thrift investment percentage" of 65 percent or more.)¹⁰ For QTL members, the stock purchase requirement is the greatest of:

- o 0.3 percent of total assets;
- o 1 percent of home mortgage loans; or
- o 5 percent of outstanding advances.

Non-QTL lenders must comply with the first two requirements above, but are required to hold more stock against outstanding advances. For non-QTL members, the third requirement is 5 percent divided by their thrift investment percentage. Thus, a member with only 10 percent of its portfolio in (qualifying) home mortgage assets is required to hold FHLB stock equal to 50 percent of advances. The way in which this third requirement varies with the share of mortgage assets in a member's portfolio is shown in Figure 3. Because of the peculiarities of the rules, commercial banks face a significant jump in their minimum stock purchase when their thrift investment percentage drops below 65 percent--the percentage needed to qualify for QTL status.

10. The thrift investment percentage is the ratio between the member's qualifying home mortgage assets (including residential whole mortgages, mortgage-backed securities, and a variety of other related assets) and portfolio assets. Portfolio assets are total assets less fixed assets, tangible assets, and liquid assets (up to a maximum of 20 percent of total assets). The statute provides an exception to savings banks, which are not required to pass the QTL test to receive the same preferential treatment as QTL members.

The stock purchase rules are formulated in an unusual way: the amount of capital in the system depends on the characteristics of its members (such as their assets, mortgages, and advances), not on the characteristics of the system. Thus, if the members' assets grow, the amount of stock in the FHLB system may grow as well, regardless of the system's risk. This situation can result in the system's having more stock than it needs to support its lending activities.

A Maximum Leverage Ratio. Federal regulations also impose a maximum leverage ratio on the FHLB system as a whole. Under current regulations, the system's consolidated obligations and deposits cannot exceed 20 times the amount of capital in the system. In other words, the system's capital must be at least 5 percent of these two liabilities. Although the system has some other liabilities not covered by this leverage rule, they are relatively small. According to the regulator, this rule currently implies that the system cannot hold less than 4.8 percent capital against its total assets.

Special Nature of FHLB Capital

The FHLBs' capital consists of two items: FHLB stock and retained earnings. At the end of 1992, FHLB stock accounted for \$10.1 billion of the system's capital. Retained earnings amounted to just \$0.4 billion, or 0.3 percent of total assets. Although the system treats FHLB stock as shareholders' equity, two unique characteristics make it unlike the common stock of most other corporations.

FHLB Stock Is Largely Financed by Federally Insured Deposits. Although FHLB stock accounts for most of the capital held by the FHLBs, it is not treated as an equity investment by the risk-based capital standards for depository institutions. Instead, it is placed in the 20 percent risk class. This classification means that for every dollar of FHLB stock, the members have to pledge only 1.6 cents of their own capital. Thus, virtually all of the stock is financed by federally insured

deposits, members' capital allocated for other purposes (such as protecting the federal government from the risks of other assets), and a few other minor liabilities.

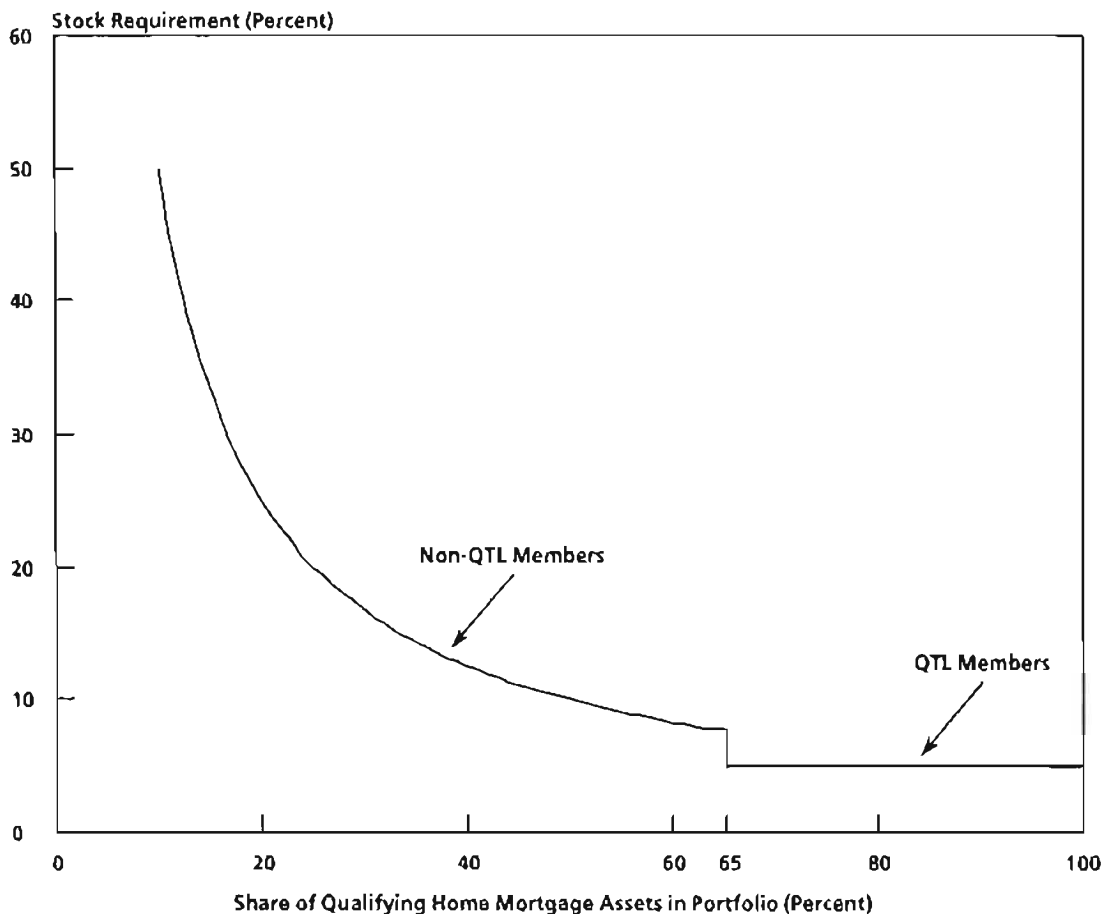
Although the large balances of FHLB stock protect the FHLBs, losses to that FHLB stock could spill over to the deposit insurance funds. Each member's own capital, of course, would first have to absorb the losses to FHLB stock before that could happen.

FHLB Stock Is Redeemable. The second unique characteristic of FHLB stock is that some of it is not permanent capital but instead can be redeemed at par. If the FHLB system became financially troubled, the voluntary

members could simply pull out of the system. Because they can redeem their stock at par, their stock can hardly be considered an at-risk investment. Instead, the involuntary members--who are stuck in the system--bear the risk.

Even the stock of the involuntary members, however, is not as solid as it appears. When an involuntary member becomes insolvent and is closed by regulators, the FHLB stock can also be redeemed at par. Indeed, the sharp fall in FHLB stock over the past two years--from \$13.4 billion in 1989 to \$10.1 billion in 1992--largely results from the system's loss of insolvent involuntary members.

Figure 3.
Stock Requirements on FHLB Advances for Members of the Federal Home Loan Bank System



SOURCE: Congressional Budget Office calculations based on information from the Federal Housing Finance Board and the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 as amended by the Federal Deposit Insurance Corporation Improvement Act of 1991.

The loss of involuntary members--and their capital--through insolvency can affect the system's financial health. Unlike the shareholders of most other corporations, the FHLBs' shareholders are also their sole customers. Thus, the value of the system declines when it loses involuntary members that are customers. With fewer members, the fixed cost of the payment to the Resolution Funding Corporation imposes a larger burden on the remaining members.

The regulator can take two actions to stem a massive loss of capital from the system, such as would occur if a prolonged economic depression caused a large number of insolvencies among members. But these possible actions do not eliminate risk to the government. First, the regulator has the power to prevent redemptions of FHLB stock at par and can effectively set a price for that stock.¹¹ But by doing so, the regulator would merely shift the risks to the system's members, who would suffer losses that could spill over to the nation's deposit insurance funds. Second, the regulator could respond to such a decline by increasing the banks' authority to hold mortgage-backed securities. Although this action would allow the system to generate additional income, it would also expose the system to greater management and operations risks.

Misleading Indicators of Capital Adequacy

The special nature of FHLB stock makes traditional indicators of capital adequacy misleading. Indeed, the only capital in the system that can truly absorb losses without increasing the risk to the deposit insurance funds is the system's retained earnings, which currently amount to just 0.3 percent of total assets. The system has low levels of retained earnings for two reasons. First, the Congress

took most of the banks' retained earnings in 1989 to pay for part of the resolution of the thrift crisis. Second, the banks, out of fear that the Congress could tap their retained earnings again, have reduced their levels of retained earnings even further since 1989. These reductions were approved by the system's regulator, the Federal Housing Finance Board.

Comparisons of Capital Ratios Among the GSEs. Relative to the other housing GSEs, the system appears at first glance to be well capitalized. At the end of 1992, the FHLBs had a ratio of total capital to assets of 6.5 percent (total capital is stock plus retained earnings). By contrast, at the end of 1992, Fannie Mae held 1.1 percent against total assets (on-balance-sheet assets plus off-balance-sheet MBSs); Freddie Mac held 0.8 percent against total assets.¹²

The FHLBs also appear to have a considerable amount of risk-weighted capital. According to the Federal Housing Finance Board, if the risk-weighted capital rules for banks and thrifts were applied to the FHLBs, the FHLBs would have the equivalent of 30 percent risk-weighted capital, far in excess of the 8 percent minimum amount set for banks and thrifts.

These comparisons, however, are largely between apples and oranges because they assume that FHLB stock is just as good at absorbing risk as is the capital of the GSEs and depository institutions. But that is not the case. For one thing, the stock that can be redeemed by voluntary members should not be counted as capital for protecting the federal government since they can redeem it at par. Excluding all the stock except that held by federally chartered S&Ls reduces the system's total capital to \$6.4 billion, or about 4 percent of total assets.

11. The banks can prevent redemption of excess stock but cannot prevent a voluntary member from withdrawing from the system.

12. About 5 percent of Freddie Mac's common stock is held by savings and loan associations. Most of Freddie Mac's capital is retained earnings. Excluding the share held by S&Ls does little to change the capital ratio--it still rounds to 0.8 percent.

But the problems with the comparison are even deeper: because FHLB members have set aside only 1.6 cents of their own capital for each dollar of FHLB stock, the involuntary members' capital should be significantly discounted. One approach is to discount their stock by 98.4 percent. Discounting it by less would imply counting members' capital that has already been set aside by the risk-based guidelines to protect against some other asset. By this discount factor, the system holds just \$591 million of capital (\$429 million of retained earnings plus \$162 million of involuntary members' capital), or roughly 0.4 percent of total assets. Similarly, by this method, the system also holds about 1.7 percent of risk-weighted capital--not the 30 percent reported by the Federal Housing Finance Board.

The difference in the capitalization numbers results from the differences in perspective. From the narrow perspective of the FHLBs, the FHLB stock seems like real capital because it can be tapped, if necessary, to protect the system and its consolidated obligations. But from a broader perspective, counting the FHLB stock at face value would ignore the fact that virtually all of the stock is financed by members' federally insured deposits, members' capital allocated for other purposes, and a few minor liabilities.

Comparisons of Credit Ratings Among the GSEs. Some people argue that the FHLB system is one of the safest GSEs because it can receive very high credit ratings. They often cite a 1991 report by Standard and Poors that gave the FHLBs' consolidated obligations a AAA rating even if investors did not regard them as carrying an implied federal guarantee. By contrast, without the implied federal guarantee, Freddie Mac's obligations would have received an A+ rating in 1990; Fannie Mae's obligations would have carried an A- rating.¹³

13. Department of the Treasury, *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (April 1991), Chapter 6. Some analysts have raised questions about whether the methods used to rate private debt can be accurately applied to a GSE and question the validity of these ratings. See letter from

These ratings, however, refer only to the system's consolidated obligations; they do not reflect the potential spillover risks to the deposit insurance funds as a result of losses on FHLB stock. In fact, one reason for the high rating on the consolidated obligations is that the system had large balances of FHLB stock--over \$10 billion in 1991. Every dollar of that stock would have to be wiped out before an investor holding a consolidated obligation would suffer any losses. But surely such losses to FHLB stock would significantly affect the system's members and, in turn, the deposit insurance funds.

Evaluating the riskiness of FHLB stock is an important issue and goes to the heart of determining whether the stock is properly classified in the 20 percent risk group. The other assets in this class have very low default rates. There is no evidence, however, that FHLB stock presents a comparable level of risk.¹⁴ To the contrary, the very low levels of retained earnings in the system raise serious questions about the current classification of FHLB stock.

Analysis by Stress Tests. Some people also claim that the system is well capitalized because it easily survives an extreme stress test, much like the one that Fannie Mae and Freddie Mac will have to pass under their new risk-based capital standards. In a recent test, the banks' portfolios were subjected to interest

Thomas J. McGuire, Moody's Investors Service, to Henry B. Gonzalez, Chairman, House Committee on Banking, August 30, 1990. For an opposing opinion, see Edward Kane, "The Changing Institutional Structure of Housing Finance" (paper presented at the Sixteenth Annual Conference of the Federal Home Loan Bank of San Francisco, December 13-14, 1990). For an evaluation of this issue, see Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (April 1991), pp. 50-55.

14. The system would present a comparable level of risk if FHLB stock were perceived as carrying an implied guarantee. Although most analysts would argue that shareholders' equity should be considered at risk, the federal government did protect some shareholders in the Farm Credit System (an agricultural GSE) when it needed federal assistance in the mid-1980s. The regulator of the Farm Credit System, however, does not count the equity of these protected shareholders in the "at-risk" capital base of the system.

rates that were 600 basis points higher (or 50 percent lower) than current interest rates for 10 years. (The Federal Housing Finance Board has concluded that the system's portfolio would not be affected by 10 years of a deep economic recession because the system's assets are virtually free from credit risk.)

These stress tests, however, are flawed and understate the risk to the system. The tests assume that the demand for advances and the level of FHLB stock in the system remain roughly at current levels throughout the 10-year period and would not be affected by the economic stresses. Surely, however, an economic depression or a huge increase in interest rates for 10 years would wipe out a large number of the nation's thrifts and banks.

As these institutions were closed, the conservator would repay the advances and redeem the capital stock. The system would lose a large fraction of its current capital and its customers. Thus the market value of the banks would fall, and the smaller membership would have to bear a much larger fraction of the REFCORP payment. And if the rates of return on equity fell sharply, some of the system's voluntary members would withdraw from the system as well, further aggravating the system's problems.

A proper stress test would have to include these important factors. The test needs equations that estimate the loss of capital and advances from the members who become insolvent as a result of a prolonged recession or higher interest rates. In addition, the test needs to model the decisions of voluntary members to stay or leave the system in response to very low rates of return on equity.

Options for Capital Reform

Policymakers face several options for reforming the capital structure of the FHLB system. Two stand out. The first option focuses on the treatment of FHLB stock as an asset on the balance sheets of depository institutions that are members of the system. It would direct the

thrift and bank regulators to classify FHLB stock as a true equity investment and consequently would require depository institutions to hold a dollar of their own capital for each dollar of FHLB stock.¹⁵ That would make FHLB stock a form of capital that would protect the federal government. Then, when the Congress sets risk-based capital standards for the FHLB system, it could rely on this capital. With this change, the system could probably operate safely with lower levels of capital than it has now, given the system's historically low levels of risk.

The second option focuses on the treatment of FHLB stock as a liability on the balance sheet of the FHLBs. Under this option, the FHLBs would not be allowed to count FHLB stock as capital for the purposes of meeting their risk-based capital standards. Instead, the FHLBs would have to hold enough retained earnings to meet the standards. (The thrift and bank regulators would not have to take any action under this option.) Alternatively, the FHLBs could be required to issue some form of publicly traded stock that was not held by members and could count as capital.

To meet a reasonable set of capital standards under this second option, the banks may have to increase their levels of retained earnings (which currently are just 0.3 percent of total assets) or to issue some publicly traded stock. At the same time, because the capital standards would be based on retained earnings (or publicly traded stock), the current requirements for purchasing minimum amounts of FHLB stock would become irrelevant and could be reduced without putting the system at risk.

For either of these options, the Congress would have to set a capital standard that appropriately reflected the riskiness of the system's operations. Examining in detail the

15. The risk-based capital rules for thrifts' equity investments are still being phased in. Starting July 1, 1994, thrifts will have to hold one dollar of capital for every dollar of equity.

different ways for setting capital standards for the FHLBs is beyond the scope of this study, but the Congress could consider two alternative strategies. First, the banks could be required to hold enough capital (appropriately defined) so that they could pass a stress test carried out by the regulator. As mentioned earlier, performing such a test must take account of how the system's members behave in a stressful environment. Failing to do so could result in levels of capital that would be insufficient to cover the risks of the system. Second, the banks could be required to hold enough capital so that a rating agency would give them a high credit rating without an implied guarantee--and without assuming that the FHLB stock could be used to protect the system (unless members treated it as an equity investment). Neither approach, of course, provides complete protection from risk, nor do they address the system's exposure to management and operations risks. The Congress, therefore, may also want to establish some minimum capital standards for the system.

Some people argue that the system may not be able to meet these capital standards and pay REFCORP at the same time. If, for instance, the Congress required members to hold a dollar of their own capital for every dollar of FHLB stock, the system could experience a significant loss of voluntary members, which could impair the system. Alternatively,

if the system had to rebuild retained earnings significantly to meet new capital standards, the system's dividend yields could be very low, prompting voluntary members to leave the system. It is difficult to evaluate the likelihood of these events; no one currently knows to what level the dividend yields could be lowered without causing members to leave.

Conclusion

The most striking feature of the capital of the FHLB system is that it cannot absorb much risk. True, the regulator can prevent a redemption of FHLB stock at par and ensure that enough capital remains in the system so that the FHLBs will never fail. But in exercising that authority, the regulator shifts the risk to the system's members, which are insured depository institutions.

To establish appropriate capital standards for the FHLBs, the Congress should require either that FHLB stock be treated as a true equity investment or that the banks hold enough retained earnings (or issue enough publicly traded stock not held by members) to meet a risk-based capital standard. Achieving these goals, however, may not be feasible as long as the system has to pay REFCORP.

Enhancing the System's Traditional Role

Several measures have been proposed for enhancing the Federal Home Loan Banks' traditional role of providing support to housing lenders. These proposals include changing the membership rules to reflect new participants in housing finance, changing the rules for collateral, and altering the system's structure through consolidation or increased competition among the regional FHLBs. These proposals provide varying degrees of benefits but could involve some additional costs. Before deciding how to enhance the system, policymakers may want to consider whether it is needed in the first place (see Box 6).

Changing the Membership Rules

The system has different classes of membership, with sets of complicated rules that treat these classes differently. Under current law, the system distinguishes between qualified thrift lenders and those that are not; between federally chartered savings and loan associations and all other charters; and between members insured by the Savings Association Insurance Fund and all other members. Some groups receive preferential treatment under one set of rules but discriminatory treatment under another set. One example of differential treatment has already been mentioned: it costs more to provide advances to members

that are insured by SAIF than to members insured by the Bank Insurance Fund.

The Congress could reform the system's membership rules by eliminating some of the distinctions. Such reform could involve, for instance, equalizing the treatment of QTL and non-QTL members and making membership in the system fully voluntary. In addition, the Congress could open up membership to new groups, such as nonprofit entities involved in affordable housing. These options are not mutually exclusive.

Equalizing the Treatment of Commercial Banks and Thrifts

Each member of the FHLB system must purchase stock in its regional bank. The amount is determined by the value of the member's assets, home mortgages, and outstanding advances. As discussed in Chapter 3, the system provides preferential treatment to members that are qualified thrift lenders. Current law also prohibits the system as a whole from providing more than 30 percent of its total advances to non-QTL members.

Virtually all savings and loan associations pass the QTL test; most commercial banks do not. Savings banks are exempt from having to meet the test. The Congress is considering legislation that would eliminate these distinctions between the QTL and non-QTL members.

The primary advantage of treating QTL and non-QTL members equally is that it would recognize that the housing finance system has changed and that commercial banks are playing an increasingly important role in mortgage markets. In the aggregate, commercial banks now hold about as much residential mortgage debt on one- to four-family homes as

do thrifts, although many commercial banks do not pass the QTL test. Thus, a large commercial bank may fail the QTL test, but the dollar value of its mortgage holdings--and its role in housing finance markets--may be quite substantial. Equalizing the treatment of QTL and non-QTL members would allow the FHLB system to serve all housing lenders on an equal basis.

Box 6. Is the System Still Needed?

Economists generally agree that government intervention in the private economy is justified if private markets fail to provide the optimal allocation of resources to different sectors. The Federal Home Loan Bank (FHLB) System was originally created in 1932 to deal with such an imperfection in the market for housing finance. Before the inception of the FHLBs, home mortgage lenders were vulnerable to failure because they had trouble liquidating their mortgage portfolios to meet depositors' demands for cash during an economic downturn. The FHLBs helped to overcome this problem by providing a source of low-cost liquidity.

Private financial markets have evolved since the 1930s. The portfolios of many home mortgage lenders are much more liquid than they were in the 1930s. Fannie Mae and Freddie Mac have created a secondary market for conventional conforming home mortgages; private-label securitizers have done the same for some types of nonconforming residential mortgages. Home mortgage lenders can now easily sell many types of mortgages in the secondary markets for emergency cash.

Home mortgage lenders also have access to alternative sources of liquidity. They do not necessarily have to sell their mortgages to raise cash. Private markets now offer collateralized loans known as reverse repurchase agreements (reverse repos). Reverse repos are similar to advances, although they require a pledge of mortgage-backed securities or conforming whole mortgages as collateral. Large lenders tend to receive reverse repos brokered from Wall Street investment firms; small lenders that do not have easy access to these investment firms can receive reverse repos through a program set up by Freddie Mac. And as a last resort, home mortgage lenders can always bor-

row from the Federal Reserve System's discount window if other sources of liquidity dry up.

Although alternatives to the FHLB advances have emerged, the system continues to offer liquidity at lower costs or more attractive terms to the nation's portfolio lenders. Indeed, the system has been able to attract new members for this reason. Thus, although the FHLB system no longer overcomes an imperfection in the market for liquidity, it does provide these services at subsidized rates. The issue for public policy is whether providing such subsidies is an appropriate role for the system.

The FHLBs, however, may help to overcome another shortcoming in the nation's credit markets. Private markets currently do not supply most depository institutions with medium- and long-term sources of funds. Indeed, the FHLBs are practically the only source of such funds. By providing these funds, the FHLBs help federally insured depository institutions manage their interest rate risks, which can reduce the costs of such risks to the deposit insurance funds. The system's long-term advances, for instance, can be used to reduce the risk of holding a 30-year fixed-rate mortgage; medium-term advances can reduce the risk of financing adjustable-rate and balloon mortgages. These activities arguably provide the strongest justification for the system's continued existence as a government-sponsored enterprise.

If the Congress directed the FHLBs to focus solely on risk management, the system would probably be much smaller than it is today. Only about 60 percent of the system's advances had a maturity of more than one year in 1992, and only 18 percent had a maturity of five years or more.

These changes may help increase membership in the system in the long run, but in the near term, they would probably not have much of an effect. Most districts are currently offering attractive dividend yields; thus, the additional requirements for stock purchases under current law are probably not a significant deterrent to membership for non-QTL members. Changing the stock purchase requirement would also have little effect on the near-term demand for advances.

Although commercial banks do not use advances to the same degree as QTL members, the stock purchase requirement is not the culprit. In fact, at the end of 1992, over 85 percent of the commercial bank members had unused borrowing capacity in the system. They could have borrowed more without purchasing additional stock but chose not to. That situation, of course, may change. When the economy becomes stronger and demand for loans picks up, these members may reduce their holdings of FHLB stock and increase their FHLB borrowings. At that point, the additional requirements for stock purchases could become a binding constraint for non-QTL members.

The main disadvantage of all of the options to equalize the treatment of QTL and non-QTL members is the lack of a guarantee that a non-QTL lender will use its FHLB advances to finance new home mortgages. Non-QTL lenders have many other investments unrelated to housing. Because money is fungible across a lender's balance sheet, FHLB advances could, in fact, be used to finance any of these other investments.

Although the system's rules for collateral attempt to link the use of advances with home mortgages, they cannot guarantee that use. Members can pledge a range of assets other than home mortgages as collateral. Moreover, members are not required to take advances to receive benefits from the system; they can receive dividends from their holdings of FHLB stock instead. Even if the member pledges an existing home mortgage as collateral, there is no guarantee that the advance will be used to

finance a new home mortgage. Of course, these problems can plague QTL members as well, but QTL members are more likely to finance a home mortgage.

Changing the rules for stock purchases (or any option to expand membership to commercial banks) could also affect revenues of the Bank Insurance Fund and distort the financing decisions of members. If, for example, more commercial banks joined the system and used advances, the premium revenue collected by BIF could fall, but the risk to BIF would not fall commensurately, for the reasons discussed in Chapter 2. Thus, two banks with identical risks could pay different amounts for deposit insurance, depending on their use of advances.

Extending Membership to Community Lenders

The Congress could consider extending membership to nonprofit entities involved in community lending and affordable housing. The major advantage of this option is that many of these entities provide housing and community services to people with low income. Access to the FHLB system could help these nonprofit entities serve this group of people at lower costs.

If the nonprofit entities were treated just like other members in the system, expanding membership would not have a significant effect on the system's risk. The system is protected mainly through its policies of overcollateralizing advances with high-quality residential mortgages. In addition, the banks can tap the members' FHLB stock if the collateral is insufficient.

The Congress, however, may give nonprofit members some sort of preferential treatment. They might be allowed, for instance, to borrow from the system without purchasing any FHLB stock. If so, the risk to the system might increase slightly, but probably not by very much as long as advances remained overcollateralized with high-quality assets.

Changing the collateral rules to include assets whose values were more volatile would have a somewhat larger effect on risk; eliminating the overcollateralization of advances for these members could significantly increase risk. In deciding among these alternatives, policy-makers would have to weigh the costs of increased risk against the benefits of expanding membership to these nonprofit groups.

Voluntary Membership

Under current statutes, federally chartered savings and loan associations are required to be members of the system, but other members are not required to join.¹ Extending voluntary membership to federally insured S&Ls would put all members in the system on an equal footing.

Eliminating the two-track system of membership may also reduce some perverse incentives in the current system. For instance, if voluntary members had enough votes to control a bank with a large minority of involuntary members, they might pressure the bank to take some additional risks. The voluntary members would bear little of that risk because they could redeem their capital and leave the system. By contrast, the involuntary members would be stuck with the costs. Such incentives are lessened if all members have the same membership rights and bear the same risks.

The main disadvantage with voluntary membership is that it presents a potential risk of a run on the system as long as the payments to the Resolution Funding Corporation and the Affordable Housing Program are fixed amounts. Such a run would be most likely to start during a general financial crisis. If members feared that the system would also fail, they would pull their stock from that bank. As that happened, the system's assets

and portfolio of mortgage-backed securities would shrink, which would cause a decline in its net income (before the payments to REFCORP and the AHP). Because the two payments are fixed, they would take a bigger chunk of the system's net income, leaving less for dividends. As dividend yields fell, the members remaining in the system would bear an ever larger fraction of the fixed costs, which would ultimately drive them out of the FHLB system.

The regulator and the Congress could take several steps to manage (and stop) a "melt-down" of the system, if one were to start. Under current rules, members have to wait six months before they can leave the system, which could provide a cooling-off period and an opportunity for the regulator to avert a crisis. The Federal Housing Finance Board, for example, could help to stabilize the system by merging the troubled district banks with healthier ones. (The ability of the FHFB to react in time, however, is not guaranteed, especially since the regulator could face some stiff opposition to a plan to merge some district banks.) The FHFB could also increase the authority of the FHLBs to invest in mortgage-backed securities, which would allow the banks to earn additional income to cover the fixed payments. But such a policy would also increase the system's exposure to management and operations risks.

In the worst case, the FHFB could exercise its statutory authority to force members to accept stock redemption at less than par value if the system's financial health were threatened. Of course, if FHLB stock were redeemed at less than par, the members' accountants would force them to write down the value of that asset. Such a write-down could result in financial problems for some members, and if those institutions failed, the deposit insurance funds would face some additional losses.

The Congress could also take steps to help manage this crisis and avoid a write-down of the FHLB stock. The Congress could, for instance, pass emergency legislation to eliminate or reduce the REFCORP payment by

1. State-chartered thrifts are required by regulation to be members of the system until April 25, 1995. At that time, they will be granted full voluntary membership.

making it proportional to net income. If the payment were proportional, dividend yields would remain stable even if the system began losing members. For this option to work well, however, policymakers would have to be informed about the severity of any crisis as it developed and act decisively to contain it.

Changing the Collateral Rules

Another set of options for enhancing the FHLBs' role in supporting portfolio lenders would loosen some of the current restrictions on the amount and types of collateral used to back advances. Under current law, members can pledge whole first residential mortgages, deposits at an FHLB, Treasury (or agency) securities, and other real estate as collateral for an advance. Other real estate collateral must have a readily ascertainable value, the banks must have first claim on it in the event of default, and advances secured by this collateral cannot exceed 30 percent of the members' capital. It is a broad category that includes second mortgages, high-risk tranches of mortgage-backed securities, and loans for housing construction and real estate. This study considers the effects of lifting this 30 percent restriction and of allowing members to pledge small-business loans as collateral.

Lift the 30 Percent Restriction

Eliminating the 30 percent restriction on loans for "other real estate" could make membership in the FHLB system more attractive to commercial banks, which are more heavily involved in financing some of these loans than many current members. Having more commercial banks join the system could boost the demand for advances and increase the system's net income. But this option also could increase the risks to the system. Although some "other real estate" loans (such as second

mortgages) are not very risky, many of them are much riskier than the FHLBs' traditional collateral--first mortgages on improved residential property. Moreover, members themselves face incentives to pledge lower-quality loans as collateral. Although the FHLBs would still be protected by members' FHLB stock and by their superlien on the assets of each borrowing member, the collateral itself would not provide as much protection.

To reduce this risk, the banks and the regulator could monitor the collateral very closely. (In many ways, the 30 percent restriction on "other real estate" substitutes for the explicit monitoring of the collateral.) Alternatively, the FHLBs could increase the amount of "other real estate" collateral that members would have to pledge in order to receive an advance. By raising the degree of overcollateralization, the banks could reduce the risk that the collateral would be insufficient to cover the advance. But higher collateral requirements would reduce the attractiveness of pledging such collateral and undercut the reason for lifting the 30 percent restriction in the first place.

Allow Small-Business Loans as Collateral

A second option for changing the collateral requirements would be to allow members to pledge small-business loans. This option could reduce the funding costs of lenders that make these loans.

Like some of the "other real estate" assets, the value of small-business loans is also more volatile than that of home mortgages. Moreover, the FHLBs do not have the expertise to evaluate the quality of a small-business loan. The success of a small business depends largely on the skills of the person running the business; it is not something that can be easily quantified. The risks of such loans, however, could be limited in the same way that the risks of "other real estate" are limited. Alternatively, the banks could control these risks by set-

ting appropriate levels of overcollateralization for advances backed by small-business loans.

Options for Reducing Operating Costs

One way to enhance the FHLBs' role in the nation's housing finance system is to try to make the banks more efficient by lowering their operating costs. With lower operating costs, the banks could reduce interest rates on advances and increase dividend yields. Lower operating costs would also allow the FHLB system to do more for the nation's mortgage markets without increasing the federal government's exposure to risk.

Operating costs could be reduced in two ways. First, the Congress could consolidate the system to eliminate excessive managerial positions and other expenses. Second, the Congress could increase the competitive pressure on the regional banks to cut inefficient expenses by making membership fully voluntary and allowing members to join any bank in the system.

Consolidate the System

The structure of the FHLBs has hardly changed since the 1930s. But there has been a revolution in communications and transportation technologies since that time. Although a network of district banks was important 60 years ago when the nation's financial system was geographically fragmented, it is less important today when many financial transactions can easily and quickly be carried out over telephone lines.

Consolidation could be achieved in a variety of ways. It could involve merging the whole system into one large bank or simply reducing the number of regional banks. Besides achieving some cost savings, consolidation could also make it much easier for the regulator to track

the system's activities and monitor system-wide risk, especially that of the system's investment portfolios. Instead of having to examine 12 investment portfolios, the Federal Housing Finance Board could focus its attention on just one portfolio. A complete consolidation could also help even out the REFCORP payment among the districts. Leveling the REFCORP payment would be harder under a partial consolidation of the system because the districts with the highest and lowest REFCORP payments (that is, San Francisco and Boston) are on opposite sides of the country.

Potential for Cost Savings. Most of the cost savings from consolidating the system would come from eliminating overlapping managerial positions. The system has 12 bank presidents, 12 chief financial officers, and 12 general counsels: instead of three officers in these top positions, there are 36. Moreover, below these top officers are other managerial positions, also replicated 12-fold in the system. In 1992, the system as a whole spent a total of \$3.2 million on the bank presidents' salaries and bonuses alone. Table 11 presents the staffing levels at each district bank by function.

Although consolidation could reduce some personnel costs, the overall cost savings would probably not be large. A consolidated system would probably have to pay its chief executive more than any of the presidents currently earn. Furthermore, the system would have to establish a new level of senior vice presidents who would manage the credit programs in the different districts; they too would probably earn more than the existing vice presidents.²

2. Some people argue that the current managerial structure is needed to market the system's products and that without it members would not use advances as much as they do now. If so, consolidation could reduce revenues from advances, thus offsetting any savings that consolidation might bring. This type of problem has been seen in mergers of some commercial banks, but it may not apply to the FHLBs. Moreover, it is not clear why an extensive managerial structure is essential to convince members to borrow money at attractive rates.

Table 11.
Number of Staff at the Federal Home Loan Banks, by Function, 1992

District	Total	Financial Services ^a	Correspondent Services ^b	Housing Finance ^c	Other ^d
Boston	103	64	9	9	21
New York	174	102	52	10	10
Pittsburgh	207	70	121	8	8
Atlanta	298	116	131	19	32
Cincinnati	212	43	157	9	3
Indianapolis	136	38	74	7	17
Chicago	112	53	15	6	38
Des Moines	257	44	187	8	18
Dallas	120	70	36	8	8
Topeka	179	48	118	5	8
San Francisco	189	136	41	8	4
Seattle	95	56	10	6	23
System	2,082	839	950	103	189

SOURCE: Congressional Budget Office using data from the Federal Housing Finance Board.

- Advances, other credit services to members, management of the banks' investment portfolio, and related activities.
- Demand deposit and NOW account services (including item processing and related activities).
- The Community Investment Program and the Affordable Housing Program.
- Other industry services, community services, public information services, building rental operations, and miscellaneous activities.

All of the banks have probably realized the maximal economies of scale in their financial operations. Thus, merging the banks to spread the fixed costs of providing credit over a larger number of customers is unlikely to generate much additional savings. One of the system's smallest banks--the FHLB of Seattle--has one of the lowest levels of operating expenses relative to assets. Furthermore, several studies of the banking industry indicate that once a bank is larger than a small- or medium-sized institution--that is, once its assets exceed \$100 million to \$300 million--its average operating costs are roughly independent of size.³ All of the regional FHLBs far exceed this minimum size. The smallest institution in the system, the FHLB of Des Moines, held more than \$7 billion of assets in 1992.

The greatest differences in the costs among financial institutions do not come from differences in their scale of operations, however, but

from the efficiency with which they provide services.⁴ Consolidation could provide a mechanism for squeezing out the inefficiencies among the district banks. A governing board, for example, could force cuts in unnecessary expenses in the different regions.

It is not possible either to estimate the size of the inefficiencies in the current system or to determine whether consolidation could help to reduce them. Certainly, the operating expenses vary widely among the FHLBs.⁵ Those costs, however, are not comparable because each bank produces a different mix of services. Some banks provide correspondent banking services; others do not. The costs of producing these services, even if done efficiently, will vary. Thus, an efficient bank could have a high expense ratio if it chose a

3. David Humphrey, "Why Do Estimates of Bank Scale Economies Differ?" *Economic Review*, Federal Reserve Bank of Richmond, vol. 76, no. 5 (September/October 1990), pp. 38-50.

4. Allen Berger and David Humphrey, "The Dominance of Inefficiencies Over Scale and Product Mix Economies in Banking," *Journal of Monetary Economics*, vol. 28, no. 1 (1991), pp. 117-148.

5. In 1992, the FHLB of Seattle, for instance, spent 8 basis points on operating expenses for every dollar of assets. By contrast, the operating costs of the FHLB of Cincinnati absorbed 21 basis points.

mix of services with high average costs. Another bank could have a low expense ratio but be inefficient if it selected services that were generally inexpensive to produce. Similarly, it is not valid to conclude that the FHLBs are operating efficiently simply because their operating expense ratios are low relative to those of other financial institutions. Other institutions provide a different mix of services.

To measure efficiency properly, operating costs have to be adjusted for the mix of services that each institution provides. Banking analysts typically use statistical techniques for this adjustment. These techniques attempt to identify the implicit costs of providing each service. This approach, however, does not produce reliable results for the FHLBs because the number of FHLBs is too small to generate meaningful answers.

Effects on the Provision of Services. Consolidation would probably not have a large effect on most of the day-to-day lending activities of the FHLBs. Most lenders receive advances by simply calling the district bank on the phone and requesting that given amounts of funds be wired to their accounts. Thus, consolidation of the system, for most transactions, would mean little more than having to call a new phone number.

But the FHLBs provide services beyond just answering the phone. They help inform local lenders about the products the system offers, especially those to control interest rate risk. They also create new credit products in response to the demands of their local customers, market the system's community investment programs, and help select affordable housing projects. The number of staff who work on the Community Investment and Affordable Housing programs is small, however. In 1992, 10 of the 12 banks had no more than 10 people working on these two programs (see Table 11).

Moreover, marketing these programs and performing these functions do not require a full-service FHLB. In principle, they could be carried out effectively through a low-cost

branch network that served the lenders in each region.⁶ Some of the money currently spent on top executives could be used to finance positions for lower-level staff directly involved with community lending and affordable housing. Alternatively, the cost savings could be used to open up small (and low-cost) sales offices in underserved rural areas or to provide additional money to low-income people. Thus, consolidation of the system would not necessarily have to result in a pullback of the system's activities in affordable housing, community development, or rural lending, provided the system retained a presence in each region.

The actual effects of consolidation, however, would depend on how it was carried out. If consolidation resulted in excessive centralization of the system, some regions might not be as well served as they are under the current system. Moreover, the regional banks in the current system may be more accountable to their local members/shareholders than a centralized bank would be. The regional banks have close ties with local lenders and know their regions well. In the current system, each bank offers a distinct regional outlook. By contrast, a consolidated bank would be more oriented toward serving customers from a national perspective.

Increase Competitive Pressure on Banks Through Voluntary Membership

Identifying the optimal number of FHLBs or the appropriate managerial structure for the system is difficult. That assessment requires weighing the benefits of consolidation against the costs. The people who may be in the best position to weigh that decision are probably the system's members. Instead of legislating the number of district banks, the Congress

6. Current statutes prohibit the FHLBs from setting up branch offices. Thus, if policymakers want a consolidated system to retain some sort of regional presence, they would have to lift this restriction.

could let members make that decision by giving them the freedom to choose any district bank in the system.

Under this option, members that valued the customized service they receive from their local FHLB would stay with their local bank. If not, they could vote with their feet and choose a different bank. Voluntary membership would strengthen the control that members have over the FHLBs and force the banks to compete directly with one another, which could help to reduce the interest rate on advances and improve the quality of services the banks provide.

Allowing members to switch membership among banks, however, could increase the overall costs of managing the system. For this reason, the Congress may wish to consider establishing an annual open season, when members would be free to switch banks. During the rest of the year, they would be prohibited from doing so.

Voluntary membership would also put some additional pressure on the Federal Housing Finance Board to make sure that the regional banks did not attempt to attract members by taking additional risks. Because the FHLBs have an implied federal guarantee, the federal

government could bear some of the costs of additional risk taking. But the FHFB's current financial management policies, if properly enforced, probably limit the chance that "bad" banks could drive out "good" banks.

Voluntary membership would also present a potential risk of a run on the system as long as the payment to REFCORP was a fixed amount, as discussed earlier in this chapter. That risk would evaporate if the payment were instead proportional to net income.

Finally, voluntary membership would change the way in which members express their displeasure with the bank's policies. Currently, members complain if they do not approve of the bank's performance. By contrast, if membership were fully voluntary, they would probably just leave the bank instead. Although "exit" can be a powerful force in effecting organizational change, it does not provide a rich set of signals about what is right or wrong with an institution. Indeed, "voice" can be very effective in achieving organizational change.⁷

7. Albert O. Hirschman, *Exit, Voice, and Loyalty* (Cambridge: Harvard University Press, 1970).

Transforming the System into a New Government- Sponsored Enterprise

The Congress could consider giving the Federal Home Loan Banks a new mission. One option, suggested in the request for this study, would be to broaden the powers of the banks and allow them to purchase and securitize home mortgages. Another option would be to allow them to make direct construction loans. Both options would drastically change the FHLBs' public purpose and could greatly increase the system's risk, among other things.

Giving the FHLBs authority to purchase and securitize risky assets is not an incremental reform. Instead, it would require a radical restructuring of the system. To control the risk of these activities, the Congress would have to make many changes to the system's capital, regulation, and structure. Even if all of these changes were made, it is not clear that the system would be successful in a new line of business. Moreover, given the scope of these changes, starting a new enterprise from scratch would probably be easier--and safer--than trying to adapt the existing banks to a new mission.

Broadening the Powers to Purchase and Securitize Assets

The Congress could broaden the asset powers of the FHLBs in a variety of ways. One option would allow the FHLBs to purchase and

securitize conforming mortgages in an effort to increase competition between them and the other two housing GSEs--Fannie Mae and Freddie Mac. Another option would allow the banks to purchase and securitize assets that the other two GSEs cannot purchase, such as nonconforming mortgages, direct construction loans, or a range of other assets.

Although both approaches have specific advantages and disadvantages, they differ in one key respect: if the FHLBs are set up to become competitors with the other two housing GSEs, the enterprise could be profitable and might be able to attract private capital willing to invest in the activity (though the banks' ability to compete successfully against two well-established GSEs is questionable). Moreover, because the risks and returns of the enterprise's activities would be known, policymakers could design an appropriate regulatory structure. The statutory language that governs the other two enterprises, for example, could be adapted to fit the FHLBs.

By contrast, if the FHLBs are allowed to enter a whole new line of business, the risks and potential profitability of the enterprise could be very uncertain. The regulatory structure and capital requirements for depository institutions certainly could be adapted for this new enterprise. But if the banks were set up to provide services that the private sector does not offer now, it is not clear how strict the regulation and capital standards ought to be, because the risks of the enterprise would be hard to judge in advance. Moreover, although the enterprise might be able to find a profitable niche, it might not be profitable enough (rela-

tive to the risks) to attract private investors willing to capitalize the enterprise.

The uncertainty about the profitability of a new GSE is illustrated by the problems experienced by the Federal Agricultural Mortgage Corporation (Farmer Mac) and the College Construction Loan Insurance Association (Connie Lee).¹ Farmer Mac was authorized in 1988 to guarantee securities backed by interests in pools of agricultural mortgages. When it became clear that Farmer Mac's services were not attractive to local lenders, the Congress in 1991 allowed Farmer Mac to finance agricultural mortgage-backed securities with its own debt. Farmer Mac's services still remain unattractive in most cases, however. Because Farmer Mac can guarantee only 90 percent of the securities backed by a pool of agricultural mortgages, participating lenders must either find someone else willing to buy the remaining 10 percent or set aside additional capital themselves to cover the credit risk on the securities. Insurance companies or other parties have been reluctant to purchase the 10 percent guarantee because they lack experience with Farmer Mac's underwriting standards, and lenders loathe putting up the additional capital because it is costly.

Connie Lee was originally authorized to insure relatively high-risk municipal bonds issued to finance facilities for institutions of higher education and teaching hospitals. At present, it is unclear whether Connie Lee will be sufficiently profitable operating only in this relatively high-risk segment of the bond insurance market. In 1992, the firm obtained authority to insure less risky bonds if wholly private firms refused to do so, but that authority may not generate much additional business.

1. Strictly speaking, Connie Lee does not have an implied guarantee and, thus, is not a GSE in the same sense as the FHLBs, Fannie Mae, Freddie Mac, the Farm Credit System, and Sallie Mae. Connie Lee is partly owned by the Department of Education and does not enjoy the same statutory benefits, particularly a line of credit with the Treasury. Nonetheless, Connie Lee is a for-profit financial institution that must be profitable enough to attract capital in competitive markets.

Allow the FHLBs to Purchase and Securitize Conforming Assets

Allowing the FHLBs to purchase and securitize conforming mortgages could introduce some additional competition into the secondary mortgage market. Fannie Mae and Freddie Mac currently dominate the nation's market for conforming fixed-rate residential mortgages. Additional competition could help to dilute some of their market power and make it more difficult for the two firms to price their services above competitive levels.

Given the current economic environment, additional competition between Fannie Mae and Freddie Mac may not have much effect on mortgage rates. But it might make it less likely that the two GSEs could use their market clout to raise mortgage rates at some point in the future.

The future benefits of having the FHLBs compete directly with the other two GSEs are by no means certain. The three GSEs could, instead, divide up the market and simply share the excess profits. In that case, none of the gains would accrue to mortgage borrowers. The FHLBs' current owners (largely depository institutions specializing in home mortgages) might actually prefer a noncompetitive outcome. Additional competition--and lower mortgage rates--in the fixed-rate market could further undermine the profitability of their basic business of lending mortgages.

More important, allowing the FHLBs to purchase and securitize conforming assets entails significant risks. The FHLBs have no experience in purchasing and securitizing residential mortgages. Nor do they have any obvious comparative advantage in that market. For all of these reasons, creating a new GSE to compete with Fannie Mae and Freddie Mac would probably make more sense than converting the FHLBs to this task.

Alternatively, the Congress could consider privatizing Fannie Mae and Freddie Mac in an

effort to create additional competition between them and the emerging market for private-label mortgage-backed securities. Examining the advantages and disadvantages of privatizing the two GSEs is beyond the scope of this study, but it is the subject of a future Congressional Budget Office study that has been mandated by section 1355 of the Housing and Community Development Act of 1992. That study is scheduled to be released on October 28, 1994.

Allow the FHLBs to Purchase or Securitize Nonconforming Assets

As an alternative, the Congress could set up the FHLBs (or a subsidiary of the banks) to purchase or securitize nonconforming assets--an option that could give the banks a unique market niche. The legislation mandating this study, for instance, asked CBO to consider the advantages and disadvantages of allowing the FHLBs to purchase direct loans for housing construction. Under this option, the banks could, in principle, fill in some of the perceived gaps in the nation's credit markets. For instance, some builders in certain regions of the country have complained that they had trouble securing loans for housing construction during the past few years; if they had had access to FHLB credit, they might have been able to finance some additional residential construction.

One can make several arguments against this option. First, the perceived shortfall in construction lending may not have been caused by a failure of the credit markets that would require the federal government to create a new GSE. Indeed, the problems in the construction industry have stemmed from many factors, including the weak economy and changing demographic trends. Unless a market failure exists, the only reason for a GSE to purchase or securitize construction loans would be to provide a subsidy to borrowers; otherwise, private lenders could do the job just as well. If the subsidy were small on average, the GSE would simply drive

banks and other institutions that make construction loans out of that market, without appreciably increasing the volume of such lending. If the subsidy were large, the GSE could have a big impact on the volume of lending but would be taking a significant amount of risk.

Perhaps the most troubling aspect of this option is that the FHLBs have no experience in evaluating construction loans. It is not an easy business. A proper evaluation requires detailed knowledge of local real estate and business conditions. In addition, the lender has to evaluate the skill of the builder. For these reasons, the risks of such loans have to be analyzed individually; they cannot be easily summarized by simple financial ratios. These factors also impede the securitization of such loans.

Changing the System's Capital, Regulation, and Structure to Control Risk

If the FHLB system were allowed to purchase or securitize risky assets--either conforming or nonconforming loans--the Congress would need to consider ways to control the additional risk to the system, including the risk to the deposit insurance funds. These policies would require changes to many aspects of the FHLB system.

Changes to the System's Capital Structure

First and foremost, the system would need a capital structure that could absorb losses without increasing risk to the deposit insurance funds. One obvious approach would be to capitalize the system with nonredeemable, publicly traded common stock. Besides protecting the system from risk, this type of capital ownership would impose market discipline on the FHLBs and create an incentive for the system to operate profitably. Moreover, the

daily price of the stock would provide the regulator with an independent indicator of the system's financial health.

Second, if depository institutions were allowed to hold this new class of stock, they should be required to treat it as a true equity investment. Such a policy would force them to hold one dollar of capital for every dollar of stock.

Third, the system would need a set of risk-based capital standards that reflected the degree of risk associated with the new activities. If the FHLBs were redesigned to compete with the other two housing GSEs, the FHLBs should face the same capital requirements as the other GSEs. If the FHLBs were given an alternative mission, the capital standards would have to reflect the unique risks of that activity. Given the uncertainty about these risks and the absence of any track record, the Congress may want to set a statutory minimum standard and provide the regulator with discretionary authority to impose higher capital standards.

Changes to the System's Regulation

If the banks were given new powers, the regulator would have to tighten its oversight of the system, with much more detailed monitoring of risk. In addition, if the Congress set up the FHLBs to compete against Fannie Mae and Freddie Mac, it would want to apply a uniform set of tax and housing regulations to all three GSEs to ensure that none was given unfair competitive advantages.

On the tax front, the FHLBs would have to pay federal income taxes just like the other two GSEs. In addition, the FHLBs' bondholders would have to lose their current exemption from state income taxes. At the same time, the Congress would have to eliminate the FHLB's payments to the Resolution Funding Corporation and the Affordable Housing Pro-

gram, although it could earmark the income taxes from the FHLBs for these two purposes.

On the housing front, the Congress would want to establish a common set of housing goals for all three GSEs. Under Title XIII of the Housing and Community Development Act of 1992, both Fannie Mae and Freddie Mac are required to purchase a certain amount of mortgages on housing for low- and moderate-income families, on rental and owner-occupied housing for very low income families (and low-income families that live in low-income areas), and on housing located in central cities, rural areas, and other underserved areas. If the FHLBs were set up to compete against the other two housing GSEs, the banks should also be required to meet these goals. Of course, if the banks were set up with a different mission, it would be impossible to establish rigidly identical goals, although the Congress could establish alternative goals.

Changes to the System's Structure

To reduce the cost of bearing credit risk, each bank would have to hold geographically diversified portfolios of loans. But if the banks had to hold such portfolios, there would be little reason to retain the decentralized, regional structure of the current system. Indeed, it would probably make more sense to consolidate the banks if they were given powers to purchase and securitize risky assets.

Such a consolidation would help the system to establish and maintain uniform underwriting standards, which are important for limiting risk. In addition, consolidation would enable the banks to develop a common system for managing information on their activities. That information would be particularly useful to a centralized manager to help identify and react to emerging problems, and to the regulator to help monitor and control the system's risk.

Short Answers to the 14 Questions in Section 1393 of Public Law 102-550

Section 1393 of Public Law 102-550, the Housing and Community Development Act of 1992, requires the Congressional Budget Office to answer 14 questions about the Federal Home Loan Bank (FHLB) System. The body of this report provides in-depth analysis on these 14 questions. This appendix provides brief answers to each one.

1. What are the appropriate capital standards for the FHLB system?

The capital standards of the FHLBs should reflect the riskiness of the banks' activities. But they should also carefully reflect the special nature of the system's capital. Virtually all of the capital in the FHLB system is FHLB stock, which is not like other forms of capital. Of the \$10.5 billion of capital in the system at the end of 1992, FHLB stock accounted for \$10.1 billion. The remainder was retained earnings.

FHLB stock differs from the stock in most corporations because it is largely financed by federally insured deposits. Under the current risk-based capital rules for depository institutions, each member has to put up only 1.6 cents of its own capital for each dollar of FHLB stock. The remaining 98.4 cents is financed through federally insured deposits, members' capital allocated for other purposes (such as protecting the federal government against the risk of other assets in the members' portfolios), and other liabilities. FHLB stock, therefore, cannot absorb more than a small amount of risk without increasing the risk to the nation's

deposit insurance funds. Although the FHLB stock protects the FHLBs, it does not necessarily protect the federal government from exposure to losses.

These findings have implications for the design and measurement of appropriate capital standards and risk. The banks are commonly perceived as safe because the bonds (consolidated obligations) they issue can receive a AAA rating even without an implied federal guarantee. But this debt receives high ratings largely because it is senior to a huge amount of FHLB stock; the stock would have to be wiped out before the consolidated obligations would bear a single dollar of loss. Of course, if that happened, the deposit insurance funds could suffer large losses. Thus, although the ratings reflect the riskiness of the consolidated obligations, they do not adequately reflect the system's total risk to the federal government.

Policymakers face several options for reforming the capital structure of the FHLB system, but two stand out. The first option focuses on the treatment of FHLB stock as an asset on the balance sheets of depository institutions that are members of the system. It would direct the thrift and bank regulators to classify FHLB stock as a true equity investment and consequently would require depository institutions to hold a dollar of their own capital for each dollar of FHLB stock. That would make FHLB stock a form of capital that would protect the federal government. Then, when the Congress set risk-based capital standards for the FHLB system, it could rely on this capital. With this change, the banks

could probably operate safely with lower levels of capital than they have now, given the system's historically low levels of risk.

The second option pertains to the treatment of FHLB stock as a liability on the balance sheet of the FHLBs. Under this option, the FHLBs would not be allowed to count FHLB stock as capital for the purposes of meeting their risk-based capital standards. Instead, the FHLBs would have to hold enough retained earnings to meet the standards. (The thrift and bank regulators would not have to take any action under this option.) Alternatively, policymakers could require the banks to meet these standards by issuing publicly traded stock that members could not hold.

To meet a reasonable set of capital standards under this second option, the banks would probably have to increase their level of retained earnings or issue some publicly traded stock. At the same time, because the capital standards would be based on retained earnings (or publicly traded stock), the current requirements for purchasing minimum amounts of FHLB stock would become irrelevant and could be reduced without putting the system at risk.

2. **What is the relationship between the capital standards for the Federal Home Loan Bank System and the capital standards under this title [Title XIII of P.L. 102-550] for the Federal National Mortgage Association [Fannie Mae] and the Federal Home Loan Mortgage Corporation [Freddie Mac]?**

The FHLBs appear to hold much more capital against their assets than the other two government-sponsored enterprises (GSEs) that deal in housing finance. In 1992, the FHLBs held 6.5 percent capital to total assets. By contrast, Fannie Mae held 1.1 percent capital to total assets (including mortgage-backed securities, which are off the balance sheet), and Freddie Mac held 0.8 percent.

These comparisons, however, are largely between apples and oranges because they assume that FHLB stock is just as good at ab-

sorbing risk as is the capital of the GSEs. But that is not the case. FHLB stock is different from that of the other GSEs, in part because much of it is financed by federally insured deposits. If FHLB stock is not counted as capital for the purposes of protecting the federal government from risk, the FHLBs do not appear well capitalized at all--indeed, their retained earnings amount to just 0.3 percent of total assets.

These conclusions reflect a change in the views of the Congressional Budget Office on the capitalization of the FHLBs. In a 1991 report, *Controlling the Risks of Government-Sponsored Enterprises*, CBO concluded that the FHLBs were well capitalized relative to their risks and relative to the other housing GSEs. That analysis examined the banks' capitalization with respect to the FHLBs alone, without considering the peculiar nature of the FHLB capital and its potential spillover risks to the deposit insurance funds. The current report broadens the analysis and includes a more global view of the federal government's exposure to risk.

3. **What is the relationship between the capital standards for federally insured depository institutions and the capital standards under this title for the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation?**

Fannie Mae and Freddie Mac have much lower ratios of capital to assets than depository institutions and do not have to pay an insurance premium for their implied guarantee. These rules may give the GSEs a competitive advantage over some of the nation's best-run, most diversified, and most highly capitalized depository institutions in bearing the credit risk of residential mortgages. But depository institutions vary widely. Many are not well diversified; some do not control their interest rate risk very well. The weaker institutions have a higher risk of failing than Fannie Mae and Freddie Mac and therefore should be required to hold more capital than the two GSEs.

4. **Discuss the advantages and disadvantages of expanding credit products and services for member institutions of the Federal Home Loan Bank System, including a determination of the feasibility of Federal Home Loan Banks (A) purchasing housing-related assets from member institutions, (B) providing credit enhancements and other products to members in addition to making advances, and (C) making direct loans for housing construction.**

Expanding the asset powers of the FHLBs is a major step and could introduce significant new risks into the system. For the banks to perform these new functions safely, the Congress would have to change many aspects of the FHLBs' current capital, structure, and regulation. Given the scope of these changes, it might make more sense to charter a new GSE from scratch than to attempt to adapt the existing FHLBs to a new mission.

In particular, if the banks were given these powers to purchase or guarantee and securitize risky assets, the Congress would have to provide a means to manage the additional risk to the system. That could involve, for instance, creating a centralized management board for the system, consolidating the regional banks, and changing the capital structure from cooperative ownership to public ownership through publicly traded stock. The Congress would have to impose risk-based capital standards on the system and tighten the regulation of the banks, with much more detailed monitoring of the system's activities and risks. Members would have to treat FHLB stock as a true equity investment and set aside one dollar of their own capital for each dollar of stock.

Although the FHLBs might be able to serve some underserved markets if they were given these new powers, it is not clear they would be profitable in doing so. To be successful, the FHLBs might need a substantial federal subsidy, in which case putting the expenditure on-budget would make more sense from a bud-

geting standpoint than providing it through an off-budget GSE. But such subsidies could displace private lenders that are already in these markets.

5. **Discuss the advantages and disadvantages of expanding eligible collateral for advances to member institutions of the Federal Home Loan Bank System by removing the limits on the amount of housing-related assets that member institutions can use to collateralize advances.**

The Congress could lift the restriction that a member cannot receive advances secured by "other real estate" assets in excess of 30 percent of that member's capital. Other real estate assets include second mortgages, high-risk tranches of mortgage-backed securities, and loans for housing construction and real estate development. Many of these assets are much riskier than residential home mortgages--the predominant form of collateral now--and lifting the restriction could therefore increase the system's risk. To control risk under this option, the banks could monitor the collateral more closely. (To some extent, the 30 percent restriction on volatile assets substitutes for detailed regulatory monitoring of the asset.) Alternatively, the banks could limit risk by increasing the amount of overcollateralization of advances secured by these assets.

6. **Discuss the advantages and disadvantages of further measures to expand the role of the Federal Home Loan Bank System as a support mechanism for community-based lenders and to reinforce the overall role of the System in housing finance.**

The Congress could allow nonprofit entities involved in community development into the system. As members of the system, these entities would have access to low-cost borrowing and help with financing their activities. Provided that these members were subject to the same restrictions as the other members, extending membership to these groups would

not affect the risk to the system. If they were allowed to enter the system without having to purchase stock, the risk to the system could increase. The increase would probably not be large, however, because the system's primary protection is the overcollateralization of advances. If these entities were allowed to borrow without having to put up as much collateral as other members, the risk to the system could increase substantially more.

The Congress could also allow members to pledge small-business loans as collateral for an advance, which would reduce the cost of funds to lenders that make these loans. But such loans are more volatile than the traditional home mortgage assets pledged as collateral. The Congress therefore may wish to set a limit on the amount of small-business loans that could be pledged as collateral. Alternatively, the banks could control this risk by setting an appropriate level of overcollateralization for advances backed by these loans.

7. Discuss the advantages and disadvantages of measures to increase membership in, and increase the profitability of, the System by modifying:

- (A) restrictions on membership and stock purchases of nonqualified thrift lenders;
- (B) the overall advance limit imposed on the Federal Home Loan Bank System to nonqualified thrift lenders; and
- (C) the membership requirement for qualified thrift lenders [QTLs].

Equalizing the treatment of QTL and non-QTL members would recognize that non-QTL lenders play an influential role in the nation's housing markets. Commercial banks (most of which are non-QTL members) now hold about the same amount of mortgage debt on one- to four-family homes as do savings institutions (virtually all of which are QTL members). But non-QTL lenders finance a variety of assets other than home mortgages. Because the

money supplied by an FHLB advance is fungible, advances given to non-QTL members carry no guarantee that they will be used to finance new home mortgages.

Granting voluntary membership to federally insured savings institutions would put all members in the system on an equal footing. It would also allow those members to put their resources where they felt that they could be most productively employed. If they thought that the FHLB system was not providing benefits worth the costs, they could pull their investment in FHLB stock out of the system and use the funds more effectively elsewhere.

But as long as the system has to pay \$300 million to the Resolution Funding Corporation (REFCORP), full voluntary membership could be destabilizing. If the system began to experience financial difficulties and members began to withdraw from the system, the fixed burden of REFCORP on the remaining members would increase, creating an additional incentive for those members to leave. The Congress could stop such a crisis by making the REFCORP payment proportional to income. In doing so, the Congress would have to impose part of the REFCORP burden on someone else.

8. What is the competitive effect of the mortgage activities of the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation on the home mortgage activities of federally insured depository institutions and the cost of such activities to such institutions, the Savings Association Insurance Fund, and the Resolution Trust Corporation?

In the mid-1980s, Fannie Mae and Freddie Mac greatly expanded their purchases of fixed-rate conforming loans. Eventually, this expansion lowered the interest rates on such loans by some 30 basis points. These lower mortgage rates helped mortgage borrowers but made it more difficult for depository institutions to be profitable in this segment of the mortgage market. Only the nation's most

cost-efficient thrifts can finance these mortgages profitably now; thrifts with average operating costs cannot earn a market rate of return on these mortgages. But thrifts continue to earn healthy profits in other segments of the mortgage markets--in particular, adjustable-rate mortgages and "jumbo" mortgages (mortgages on single-family one-unit homes whose principal balance exceeds \$203,150 in 1993).

Although Fannie Mae and Freddie Mac lowered mortgage rates, they were not responsible for the thrift crisis. That responsibility lies with the thrift industry for helping to formulate the system and then abusing it, with the government for allowing the thrifts to engage in riskier activities while reducing capital requirements, and with the regulators for their lax oversight.

9. **What is the likelihood that the Federal Home Loan Banks will be able to continue to pay the amounts required under the Financial Institutions Reform, Recovery, and Enforcement Act of 1989?**

Although the REFCORP payment has altered the mission and activities of the FHLBs, the system can probably meet its \$300 million obligation to REFCORP under current statute. The banks' financial situation appears to have stabilized. Demand for advances--the loans that the banks make to their members--has been roughly \$80 billion during the past two years. Moreover, the borrowing of advances is growing again, and the system has also been able to attract new members.

Some people argue, however, that the system may not be able to meet the REFCORP payment and rebuild its retained earnings at the same time. If policymakers directed the banks to rebuild retained earnings to protect the federal government from risk, the system's dividend yields could fall substantially, which might drive some voluntary members out of

the system and impair its operations. It is hard to estimate the likelihood of this event. No one knows how the voluntary members would respond to lower dividend yields, nor how low the dividends could be pushed without causing voluntary members to withdraw from the system.

10. **Discuss the extent to which a reduction in the number of Federal Home Loan Banks would reduce non-interest costs of the System.**

A consolidation of the system could reduce noninterest costs, but the savings are unlikely to be large. Most of the savings would come from eliminating some redundant managerial positions. There is no evidence that the system could realize any additional economies of scale.

11. **Discuss the impact that a reduction in the number of Federal Home Loan Banks would have on the effectiveness of affordable housing programs and community support programs under the Federal Home Loan Bank System.**

The effect of consolidation on these programs would depend on how it was carried out. If the system maintained a regional presence through a set of branch offices, consolidation would not necessarily have to affect these programs adversely. Indeed, the banks might be able to do more for these two programs if some of the money saved by eliminating top managerial positions were used to fund affordable housing positions or projects. Although excessive centralization of the system might reduce the effectiveness of these programs, the banks could probably overcome this potential problem because the number of employees involved with the Affordable Housing Program (AHP) and the Community Investment Program (CIP) is relatively small. In 1992, 10 of the 12 banks had fewer than 10 staff members working directly on these two programs.

12. **Discuss the impact that a reduction in the number of Federal Home Loan Banks would have on the availability of affordable housing in rural areas and the ability of small rural financial institutions to provide housing financing.**

Many members receive advances by simply picking up the phone and requesting that the money be wired to their accounts. For these transactions, a consolidation of the system would mean little more than having to dial a few extra digits. But the regional banks do more than just provide advances over the phone. They offer technical advice, provide subsidies for affordable housing, and help members in other ways through customized service. Consolidation might adversely affect these other services, although these effects could be reduced if the system maintained some sort of branch network. The ultimate impact would depend on how the consolidation was carried out.

The optimal number of FHLBs is hard to determine. The people who are in the best position to determine that number may be the system's members. The system, after all, is set up to serve them. If the Congress gave each member the freedom to choose its bank, the members themselves would decide whether the benefits of the regional system outweighed its costs. Such freedom would also put additional pressure on the regional banks to cut unnecessary expenses and provide valued services. Some regional banks might ultimately close, although such closures would reflect the choices of members.

13. **What is the current and prospective impact of the Federal Home Loan Bank System on:**
- (A) **the availability and affordability of housing for low- and moderate-income households; and**
 - (B) **the relative availability of housing credit across geographic areas, with particular regard to**

differences depending on whether properties are inside or outside of central cities.

The system has two programs, the Community Investment Program and the Affordable Housing Program, that provide subsidized funds to members who finance low- and moderate-income housing. The system spent a little more than \$50 million, or 6 percent of its net income, on these two programs in 1992. Both programs appear to be meeting their statutory requirements. About two-thirds of the benefits from the AHP have gone to people whose income is 50 percent or less of the median income for their area. The data also suggest that at least 37 percent of the benefits from the Community Investment Program and at least 50 percent of the benefits from the Affordable Housing Program went to people in central cities. These estimates are lower bounds, however; more precise information is not available.

Although the FHLBs provide billions of dollars of untargeted advances to their members, the link between these FHLB advances and low-income home buyers is tenuous at best. There is no evidence that members that borrow large amounts of advances are more likely to finance low-income mortgages. More important, once an advance leaves the FHLBs, tracing the money to any particular use is impossible. The money could be used to fund any of the members' activities, including those completely unrelated to housing.

Moreover, if members use advances to finance home mortgages, people with income above the median for their area are more likely to benefit than people with lower income. In 1991, three-quarters of the conventional mortgage dollars originated by portfolio lenders for the purchase of homes went to borrowers with income above the median. Thus, if lenders allocate their advance dollars in these same proportions, people with income above the median receive \$3 of support for every dollar that goes to someone below the median. Those are not well-targeted benefits.

This problem is endemic to many housing policies that subsidize general lending institutions rather than the home buyer directly. The criticism can also be leveled against providing general support to the housing markets through Fannie Mae and Freddie Mac. It reflects the fact that people with higher income are more likely to take out a mortgage. Providing general (untargeted) support through the FHLBs is an inefficient way to help low-income people step up to home ownership.

14. **Discuss the appropriateness of extending to the Federal Home Loan Bank System the public purposes and housing goals established for the Federal National Mortgage Association and the Federal Home Loan**

Mortgage Corporation under this title, the Federal National Mortgage Association Charter Act, and the Federal Home Loan Mortgage Corporation Act.

If the FHLBs were set up to compete directly with Fannie Mae and Freddie Mac, it would make sense to apply the same housing goals to the FHLBs that the other two GSEs face. But those goals are specific to the types of activities that Fannie Mae and Freddie Mac carry out and are not directly applicable to the FHLBs. Under current law, the FHLBs contribute to affordable housing and community development by financing the AHP and CIP. As of 1995, the system will contribute \$100 million a year to the AHP.

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May 1991.

Controlling the Risks of Government-Sponsored Enterprises, April 1991.

Reforming Federal Deposit Insurance, September 1990.

Credit Reform: Comparable Budget Costs for Cash and Credit,
December 1989.

Current Housing Problems and Possible Federal Responses,
December 1988.

Questions about these studies should be directed to CBO's Macroeconomic Analysis Division at (202) 226-2750. The Office of Intergovernmental Relations is CBO's Congressional liaison office and can be reached at 226-2600. Copies of the studies may be obtained by calling CBO's Publications Office at 226-2809.